

Exam	Score
Exam 1 (Pass)	65%
Exam 2 (Pass)	68%
Exam 3 (Pass)	70%
Exam 4 (Pass)	72%
Exam 5 (Pass)	75%
Exam 6 (Pass)	78%
Exam 7 (Pass)	80%

Professor Messer's
CompTIA A+
CORE 1 220-1001
Practice Exams

James "Professor" Messer

**Professor Messer's
CompTIA 220-1001
A+ Core 1
Practice Exams**

by James “Professor” Messer



<http://www.ProfessorMesser.com>

Professor Messer's CompTIA 220-1001 A+ Core 1 Practice Exams

Written by James "Professor" Messer

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First Edition: March 2020

This is version 1.05.

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About the Author

James Messer is an information technology veteran whose career has included supercomputer operations, system administration, network management, and IT security.

James is also the founder and CEO of Messer Studios, a leading publisher of training materials for IT certification exams. With over 100 million videos viewed and 440,000 subscribers, Professor Messer's training has helped thousands of students realize their goals of a profession in information technology.

Introduction

The CompTIA A+ is one of the most popular IT certifications in the industry, and I think it's also one of the most enjoyable study experiences. Whether you're just getting started in information technology or you're a seasoned veteran, you have to appreciate the vast array of hardware and software that's covered in the A+ exams. If you love technology, then the A+ certification is for you.

I've created these sample exams to help you learn what you'll need to pass the exam, but I also hope they provide some additional context and knowledge that you can use once the certification process is over.

In information technology, the learning process never ends. I wish you the best success on your journey!

- Professor Messer

The CompTIA A+ Certification

The 220-1001 A+ Core 1 certification covers many different topics, and includes everything from hardware troubleshooting to cloud technologies. Here's the breakdown of each domain and the percentage of each topic on the 220-1001 A+ exam:

Domain 1.0 - Mobile Devices - 14%

Domain 2.0 - Networking - 20%

Domain 3.0 - Hardware - 27%

Domain 4.0 - Virtualization and Cloud Computing - 12%

Domain 5.0 - Hardware and Network Troubleshooting - 27%

The practice exams in this book follow this breakdown, so you should find that the distribution of questions on a practice exam will be very similar to what you'll find on the actual exam.

How to Use This Book

This book contains three separate 90-question practice exams; Exam A, Exam B, and Exam C. The exams are designed to emulate the format and complexity of the actual A+ exam.

- Take one exam at a time. The difficulty levels are similar between exams, so it doesn't matter which exam you take first.
- The 220-1001 A+ exam is 90 minutes in length, so try setting a timer when you start your practice exam. Time management is an important part of the exam.
- The first section of each practice exam is the list of questions. There's a link next to every question that will jump immediately to the quick answer page or the detailed answer page. If you're using the digital version, your PDF reader keys can quickly jump back to the question page. Adobe Reader in Windows uses **Alt-Left arrow** and macOS Preview uses **Command-[** to move back to the previous view. Be sure to check your PDF reader for specific navigation options.
- The quick answer page is a consolidated list of the answers without any detail or explanation. If you want to quickly check your answer sheet, this is the page for you.
- A detailed answer is available for each exam question. This section repeats the question, the possible answers, and shows the answer with a detailed explanation. This section is formatted to show only one answer per page to avoid giving away the answer to any other questions. Digital readers can use your PDF reader's back button to quickly jump back to the questions.
- As you go through the exam, write down the answers on a separate sheet of paper. You can check the answers after the 90 minutes have elapsed.
- You can grade your results against the quick answer page. For incorrect responses, be sure to check the detailed answer pages for information on why certain answers were considered correct or incorrect.
- After each detailed answer, a video link is available for more information on the topic. You can click the link in your PDF or use your camera to view the QR (Quick Response) code on the page. Your camera app will provide a notification message that will launch the video page in your browser. The URL is also provided for manual entry.

You have the option of using each practice test as a 90 minute timed exam, or as a casual Q&A. Try stepping through each question, picking an answer, and then jumping to the detailed explanation to learn more about each possible answer.

Here's a scoring chart:

Less than 63 questions correct / 70% and lower - Use the exam objectives at the end of each detailed answer to determine where you might need some additional help.

63 to 72 questions correct / 70% to 80% - You're so close! Keep working on the areas you're missing and fill in those gaps.

73 to 81 questions correct / 80% to 90% - This is a strong showing, but some additional studying will help you earn points on the real exam.

Although the actual 220-1001 A+ exam does not calculate the final score as a percentage, getting an 85% on the practice exam can be considered a passing grade.

More than 81 questions correct / over 90% - You're ready for the real thing! Book your exam and pass your 220-1001 A+ exam!

The detailed answer pages break down every correct answer and every incorrect answer. Although it's useful to know when you got a question right, it's more important if you understand exactly why a question was marked wrong. If you understand all of the technologies on these sample exams, then you'll be ready for the real thing.

Practice Exam A

Performance-Based Questions

A1. Match the interface name to the picture:

eSATA

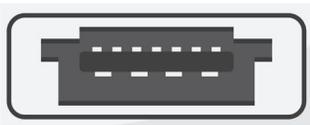
DB-9

Lightning

USB-C

Micro-USB

RJ45



A2. Order these technologies from fastest throughput to slowest:

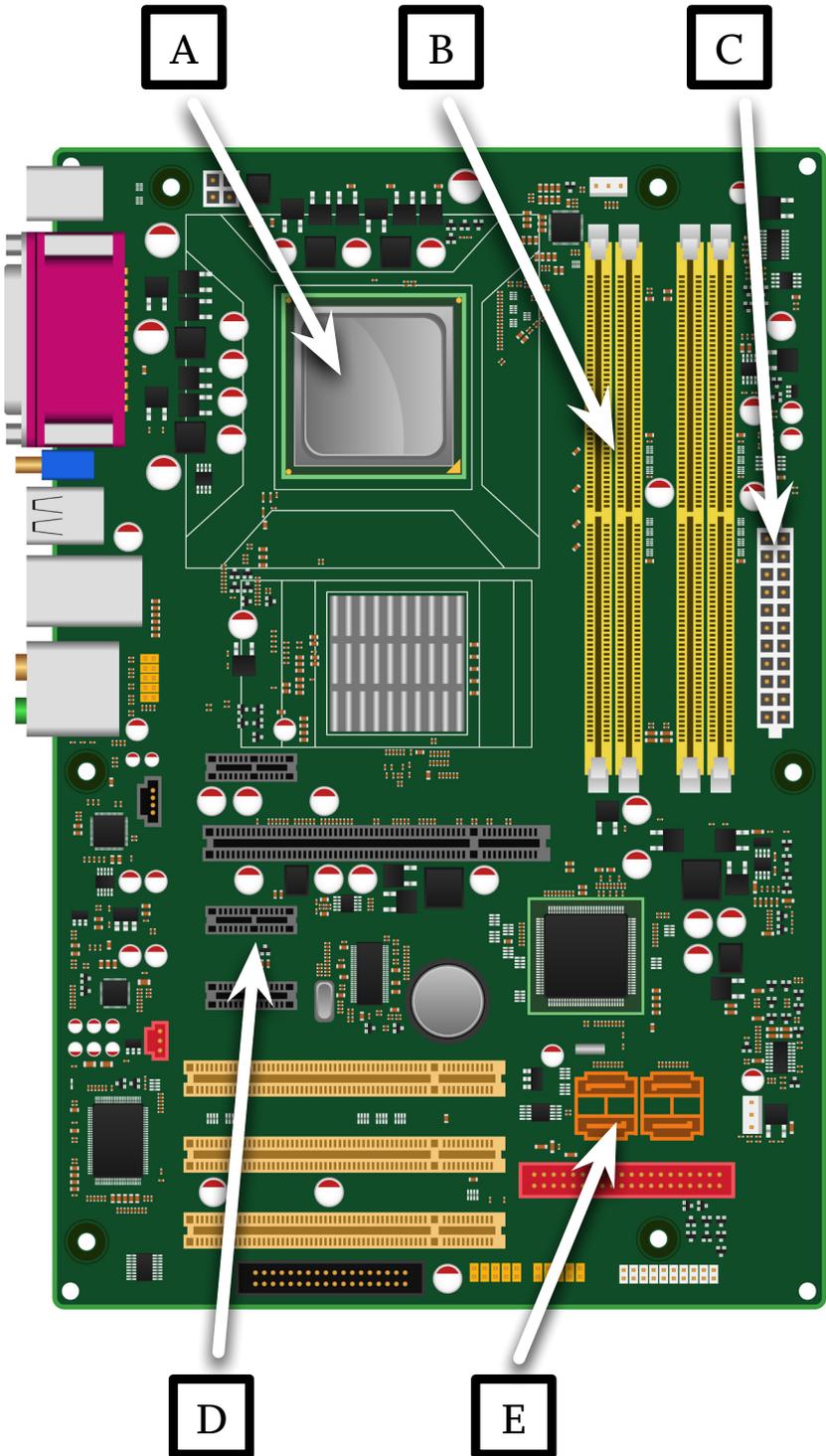
- 802.11g
- USB 3.0
- SATA Revision 3.0
- FireWire 800
- Thunderbolt 3
- 1000BASE-T

A3. Match the port number to the protocol. Not all port numbers will be used.

-
- tcp/389
 - tcp/80
 - tcp/110
 - tcp/3389
 - tcp/25
 - tcp/445
 - udp/161
 - tcp/143
 - tcp/22
 - tcp/23
 - udp/53
 - tcp/443

-
- HTTPS
 - LDAP
 - DNS
 - IMAP
 - SNMP
 - RDP
 - SSH

A4. Identify the components on this motherboard:



A5. Configure a RAID array with these characteristics:

- Data remains available if a single drive fails
- Most efficient use of drive space
- Fastest access time
- Total storage size is not a priority

Select the RAID type and configure the three drive bays using the available drives.

The drives can be used multiple times, and not all drives will be used.



Available Drives:

SATA III	SATA III	SATA III	SATA III
-	-	-	-
1 TB HD	2 TB HD	4 TB HD	1 TB HD
-	-	-	-
15,000 RPM	10,000 RPM	7,200 RPM	5,600 RPM

Practice Exam A

Multiple Choice Questions

A6. The printer in the accounting department has stopped all printing processes. The print queue shows that there are seven jobs in the queue that are waiting to be printed. Which of the following would be the BEST next troubleshooting step?

- A.** Send a test job to the printer and move it to the top of the queue
- B.** Restart the printer's spooler
- C.** Install an updated version of the printer driver
- D.** Delete everything in the queue and resend the print jobs

Quick
Answer: **31**

The Details: **39**

A7. A system administrator has connected an external USB drive to a computer to transfer some documents. When booting the computer, the system tries to boot from the external drive and gives an error message. Which of the following would be the BEST way to prevent the USB drive from booting?

- A.** Modify the BIOS to boot from the internal hard drive
- B.** Modify the boot order in Windows Disk Management
- C.** Rebuild the MBR on the external hard drive
- D.** Disable the external drive in Device Manager

Quick
Answer: **31**

The Details: **40**

A8. A computer has been configured with an SSD, a high-end video adapter, and the maximum amount of RAM. Which of the following would be the MOST likely use for this computer?

- A.** Thin client
- B.** Network attached storage device
- C.** CAD/CAM workstation
- D.** VDI client

Quick
Answer: **31**

The Details: **41**

- A9.** A network connection in a conference room was installed years ago, and there's no documentation for the cable run. Connecting a device to the cable results in a successful Ethernet connection, so the other end of the cable should terminate somewhere in the wiring closet. Which of these tools would be the best choice to find the other end of the network connection?
- A.** Cable tester Quick Answer: **31**
 - B.** Tone generator
 - C.** Multimeter The Details: **42**
 - D.** Crimper
- A10.** A client's laptop has recently had its internal mini-PCIe wireless adapter card replaced. Although Device Manager shows the card working properly, the wireless card management software shows very low signal strength. The wireless card keeps dropping its wireless connection and will not maintain a consistent network link. What is the most likely reason for this problem?
- A.** The mini-PCIe card isn't compatible with the laptop Quick Answer: **31**
 - B.** The wireless adapter antenna cable isn't connected
 - C.** The operating system doesn't support the wireless card The Details: **43**
 - D.** The wireless card is administratively powered off
- A11.** A user has powered on their computer and received the message "Operating system not found." A check of the system shows that the hard drive cables are properly connected. Which of the following would be the NEXT best troubleshooting step?
- A.** Boot to Safe Mode Quick Answer: **31**
 - B.** Replace the boot drive
 - C.** Restore from a known good backup The Details: **44**
 - D.** Check for removable drives

- A12.** A user is having an issue with a smartphone not recognizing their location on a map. All other Internet and phone features are working properly. Which of the following would be the MOST likely cause of this issue?
- A.** GPS is disabled Quick
Answer: **31**
 - B.** The battery is low
 - C.** Wi-Fi is enabled The Details: **45**
 - D.** Storage space is low
- A13.** A client's laptop sounds like it is booting normally, but nothing appears on the LCD display. After closer inspection, you notice the output is visible but it's too faint to clearly see anything. What is the MOST likely cause of this issue?
- A.** Video card Quick
Answer: **31**
 - B.** Inverter
 - C.** Video driver The Details: **46**
 - D.** Power adapter
- A14.** A graphics designer is experiencing increasing delays when accessing files on her hard drive. The user maintains a daily backup of all data on the drive. Which of these would be the BEST next troubleshooting step for this issue?
- A.** Reinstall Windows Quick
Answer: **31**
 - B.** Perform a hard drive diagnostic
 - C.** Restore from the daily backup The Details: **47**
 - D.** Boot to Safe Mode
- A15.** Which of the following would be MOST likely found on a DVD-ROM?
- A.** Document archive Quick
Answer: **31**
 - B.** Operating system boot files
 - C.** RAID parity files The Details: **48**
 - D.** BIOS configurations

- A16.** When a user starts their computer, the screen remains blank and the computer beeps twice. Which of these would be the MOST likely cause of this issue?
- A. The boot device is not connected
 - B. The memory is faulty
 - C. The operating system has become corrupted
 - D. The PC is infected with malware
- Quick
Answer: **31**
The Details: **49**
- A17.** A firewall is configured to block email transfers from a remote server. Which of the following ports is the firewall blocking?
- A. 443
 - B. 22
 - C. 23
 - D. 25
- Quick
Answer: **31**
The Details: **50**
- A18.** A technician is connecting a laptop to an LCD projector in a conference room. The display on the laptop works properly, but the projector image is constantly flickering and pixelating. The technician has modified the resolution and refresh rates, but the projector image continues to flicker. Which of the following would be the BEST next troubleshooting step?
- A. Replace the video cable
 - B. Disable the laptop display
 - C. Replace the projector bulb
 - D. Power cycle the projector
- Quick
Answer: **31**
The Details: **51**
- A19.** The stylus on a Windows tablet will no longer interact with the user interface. Which of these would be the MOST likely cause of this issue?
- A. Digitizer
 - B. Backlight
 - C. Antennas
 - D. Inverter
- Quick
Answer: **31**
The Details: **52**

A20. A user in the accounting department needs to output a form on the laser printer that prints on both sides of the page. Which of the following options should be configured in the accounting software?

- A.** Collate
- B.** Orientation
- C.** Duplex
- D.** Resolution

Quick
Answer: **31**

The Details: **53**

A21. A user needs to connect their laptop to the wired Ethernet network, but the laptop does not have an integrated Ethernet interface. Which of the following would allow the laptop to connect to an Ethernet network? (Pick TWO)

- A.** Docking station
- B.** VGA interface
- C.** USB to Ethernet adapter
- D.** DisplayPort to HDMI cable
- E.** DVI to HDMI adapter
- F.** Bluetooth

Quick
Answer: **31**

The Details: **54**

A22. A server administrator has received an alert showing that one drive in a RAID 1 array has failed. Which of the following would be the best way to resolve this alert?

- A.** Replace the bad drive and resync the array
- B.** Replace all drives in the array and resync the array
- C.** Replace the bad drive and restore from backup
- D.** Convert the array to RAID 0 and replace the drive
- E.** Replace all drives in the array and restore from backup

Quick
Answer: **31**

The Details: **55**

- A23.** A system administrator is building a server for a data center in another country. The server will manage a print queue and provide a local storage partition for temporary file transfers. Which of the following power supply specifications will be the MOST important for this server?
- A. Voltage input options Quick
Answer: **31**
 - B. Number of PCIe connectors
 - C. Modular cabling The Details: **56**
 - D. Fan noise rating
- A24.** Which of the following ports are used for file transfers? (Select TWO)
- A. 21 Quick
Answer: **31**
 - B. 110 The Details: **57**
 - C. 25
 - D. 23
 - E. 20
 - F. 53
- A25.** Which of these technologies do not require a backlight to provide a viewable display?
- A. LCD Quick
Answer: **31**
 - B. IPS
 - C. OLED The Details: **58**
 - D. LED
- A26.** A system administrator has tripped over an Ethernet cable and the cable's RJ45 connector has broken. Which of the following should be used to resolve this issue?
- A. Punch-down tool Quick
Answer: **31**
 - B. Tone generator and probe
 - C. Cable tester The Details: **59**
 - D. Crimper

A27. A network administrator is troubleshooting a network outage, and she believes that the issue is related to a bad switch. The old switch is replaced with a newer model and the cabling is moved to the new switch. Which of the following should be the NEXT troubleshooting steps? (Choose TWO)

- A.** Test the theory
- B.** Verify full system functionality
- C.** Establish a plan of action
- D.** Identify the problem
- E.** Document the findings

Quick
Answer: **31**

The Details: **60**

A28. A gaming enthusiast is building her own computer to provide the best performance with 3D action games. Which of these would be the most important components of a gaming PC? (Choose TWO)

- A.** RAID array
- B.** Small form factor
- C.** High-end GPU
- D.** Built-in tuner
- E.** SSD
- F.** Network-connected printer

Quick
Answer: **31**

The Details: **61**

A29. What type of device connects multiple computers to the network, but becomes less efficient as network traffic increases?

- A.** Switch
- B.** Hub
- C.** Repeater
- D.** Router

Quick
Answer: **31**

The Details: **62**

A30. In which of the following would a Lightning cable MOST likely be used?

- A.** Connect a server to a display monitor
- B.** Increase the available memory of a device
- C.** Remotely control a mobile device
- D.** Charge a mobile device

Quick
Answer: **31**

The Details: **63**

- A31.** A network administrator would like to enable DHCP on a laptop, but he would like the same IP address to be assigned to the laptop each time it starts. Which of the following would provide this functionality?
- A.** Create an IP reservation on the DHCP server
 - B.** Administratively configure the laptop's MAC address
 - C.** Use APIPA addressing
 - D.** Assign the laptop to a static IP VLAN
- Quick
Answer: **31**
The Details: **64**
- A32.** A user is complaining about slow network performance from their workstation. A network technician checks the data closet and finds that the wires are not properly seated in the 110 block. Which of the following should the technician use to correct this issue?
- A.** Crimper
 - B.** Multimeter
 - C.** Punch-down tool
 - D.** Cable tester
- Quick
Answer: **31**
The Details: **65**
- A33.** A user has just connected to a new wireless network, but they cannot view any Internet web sites. Their network configuration shows the IP address as 169.254.228.109, the subnet mask is 255.255.0.0, and they have not been assigned a default gateway. Which of these is the MOST likely cause of this issue?
- A.** The subnet mask is not correct
 - B.** The Internet provider is experiencing a temporary outage
 - C.** The DHCP server is down
 - D.** The wireless adapter is not working properly
- Quick
Answer: **31**
The Details: **66**

- A34.** A help desk technician needs to use different Windows versions to study for an industry certification exam. The technician currently uses a Windows desktop computer with 4 GB of RAM and a 750 GB free on the hard drive. Which of the following would be the BEST way to perform this task? (Choose TWO)
- A.** Install a KVM
 - B.** Install an additional hard drive
 - C.** Create a Windows Recovery Environment boot drive
 - D.** Upgrade the system RAM
 - E.** Install Windows guest VMs
- A35.** While configuring a new workstation in the lab, one of the engineers recommends using 255.255.255.0. What part of the configuration is this associated with?
- A.** Default gateway
 - B.** Subnet mask
 - C.** DNS server
 - D.** IP address
- A36.** Which of the following BEST describes a Bluetooth network?
- A.** PAN
 - B.** WAN
 - C.** LAN
 - D.** MAN
- A37.** Sam, a user in the accounting department, is migrating from Android to iOS. She would like all of her emails, contact lists, and calendar events to be moved to her new phone. Which of the following would be the BEST way to accomplish this task?
- A.** Use a Windows-based migration tool
 - B.** Save the Android phone data as a CSV file
 - C.** Connect the new phone to the corporate Exchange server
 - D.** Use a USB-to-Lightning cable

Quick

Answer: 31

The Details: 67

Quick

Answer: 31

The Details: 68

Quick

Answer: 31

The Details: 69

Quick

Answer: 31

The Details: 70

A38. The internal Bluetooth adapter of a laptop has failed, and the user would like to get a repair estimate. Which of the following would be the BEST way to determine an accurate price of an exact replacement?

- A. Research online forums
- B. Determine the purchase price of a USB to Bluetooth adapter
- C. Disassemble the laptop case and document the process
- D. View the Bluetooth information in Network settings

Quick
Answer: 31

The Details: 71

A39. A server administrator has been asked to configure the storage requirements for a new database server. The database owner requires the fastest performance, and redundancy if a single drive fails. The storage array should support 8 TB or larger of available space. Which of the following options would be the BEST choice?

- A. RAID 10 with 5,400 RPM, 8 TB drives
- B. RAID 5 with 10,000 RPM, 5 TB drives
- C. RAID 1 with 7,200 RPM, 8 TB drives
- D. RAID 0 with 15,000 RPM, 5 TB drives

Quick
Answer: 31

The Details: 72

A40. A user would like to access email from their Windows 10 laptop using a smartphone's Internet connection. Which of these technologies needs to be enabled on the laptop?

- A. LTE
- B. Bluetooth
- C. NFC
- D. IR

Quick
Answer: 31

The Details: 73

A41. A user has connected their laptop to an LCD projector, but video isn't displaying through the projector. What laptop key is often combined with the "CRT/LCD" key to control the video output?

- A. Fn
- B. Alt
- C. Windows
- D. Ctrl

Quick
Answer: 31

The Details: 74

A42. A member of the management team is developing a product based on wearable technology. Which of the following would BEST describe this product type?

- A. Virtual reality
- B. e-Reader
- C. Smart watch
- D. Smart phone

Quick
Answer: 31

The Details: 75

A43. A system administrator is using a maintenance kit on a network-connected laser printer. Which of the following should be the LAST step when performing this maintenance?

- A. Examine the feed rollers
- B. Wait until the fuser unit cools down and replace it
- C. Reset the page counter
- D. Replace the power cord

Quick
Answer: 31

The Details: 76

A44. An application developer needs to test an application across all of the operating systems used by the company. Each operating system will be tested individually in a lab environment. The company would like to minimize any additional hardware purchases for this project. Which of the following would be the BEST way to test this application?

- A. Purchase a system that is configured just above the hardware requirements for the highest-end operating system. Create separate VMs for each operating system.
- B. Purchase individual test computers that match the hardware requirements for each OS. Install different operating systems on each test computer.
- C. Designate existing user workstations to be used as testing systems. Run all application tests during non-working hours.
- D. Purchase a system that matches the minimum hardware requirements for the highest-end operating system. Create a system image for each operating system and reimage the computer between tests.

Quick
Answer: 31

The Details: 77

A45. Which wireless standard operates in the 5 GHz band and provides over 5 Gbit/sec of throughput?

- A. 802.11n
- B. 802.11g
- C. 802.11ac
- D. 802.11a

Quick
Answer: **31**

The Details: **79**

A46. A user in the manufacturing department reports that every page printed from the central networked laser printer has a single black line that extends from the top of the page to the very bottom. Which of the following is the MOST likely cause of this issue?

- A. The fuser is damaged
- B. The printer is out of memory
- C. The photosensitive drum is damaged
- D. The toner is low

Quick
Answer: **31**

The Details: **80**

A47. Which mobile device connection is commonly used for making payments at a store checkout?

- A. NFC
- B. Infrared
- C. Cellular
- D. Bluetooth

Quick
Answer: **31**

The Details: **81**

A48. A company is planning to use a cloud-based file storage service to store, share, and synchronize files across all company devices. Which of the following would be the MOST important resource requirement for this service?

- A. Local storage capacity
- B. Internet bandwidth
- C. CPU utilization
- D. System memory

Quick
Answer: **31**

The Details: **82**

A49. When printing a document on a laser printer, a user finds that all of the text on the page smears when touched. What is the MOST likely cause of this issue?

- A. Fuser is damaged
- B. Toner cartridge is low
- C. Photosensitive drum has been scratched
- D. Incorrect printer driver is installed
- E. Printer cleaning process is not working

Quick
Answer: **31**

The Details: **83**

A50. A manager's computer is able to connect to Internet sites while in conference rooms or in the building courtyard. When the laptop is brought back to the manager's desk and placed into the docking station, the Internet access is unavailable but all other features are working. Which of the following should be the FIRST troubleshooting task for this issue?

- A. Replace the docking station power supply
- B. Upgrade the laptop BIOS
- C. Replace the docking station
- D. Check the docking station network cable

Quick
Answer: **31**

The Details: **84**

A51. A company is developing an internal application that will run on smartphones and tablets. What should the application use to simplify the authentication process?

- A. Strong passwords
- B. SSO
- C. VPN
- D. SSL

Quick
Answer: **31**

The Details: **85**

A52. One of the software developers in your company would like to install six virtual machines on their desktop for application testing. Each VM would run a different operating system, but only one VM would be running at any particular time. Which of the following components would be the MOST important for this configuration? (Choose TWO)

- A.** Video adapter RAM
- B.** Hard drive space
- C.** Gigabit NIC
- D.** System RAM
- E.** Enhanced audio

Quick
Answer: **31**

The Details: **86**

A53. What is the minimum category of unshielded copper cable that would run a 10 gigabit per second Ethernet link with a fifteen meter distance?

- A.** Category 5
- B.** Category 6
- C.** Category 5e
- D.** Category 6A

Quick
Answer: **31**

The Details: **87**

A54. An engineer has manually configured IP addresses for a small office that uses a cable modem for Internet connectivity. However, none of the devices configured with a manual IP address are able to browse Internet websites. All devices are connected to the cable modem with twisted-pair Ethernet cables. This is the configuration of one device:

IP address: 192.168.1.7

Subnet mask: 255.255.255.0

Default gateway: 192.168.1.1

DNS: 192.168.1.7

The engineer can successfully ping the local IP address and the default gateway address. Which of the following should be the NEXT troubleshooting step?

- A.** Check for duplicate IP addresses Quick
Answer: **31**
- B.** Replace the Ethernet cable
- C.** Check the DNS configuration The Details: **88**
- D.** Replace the cable modem

A55. A user in a SOHO office needs to connect a laptop to the DSL router. Which of the following cables should be used for this connection?

- A.** Ethernet Quick
Answer: **31**
- B.** Lightning
- C.** Coaxial The Details: **89**
- D.** USB-C

A56. A user in the accounting department has turned on their computer and received the message “Date and Time not set.” Which of the following would be the MOST likely reason for this message?

- A.** The motherboard battery has discharged Quick
Answer: **31**
- B.** Windows update has rebooted the computer The Details: **90**
- C.** Daylight Saving Time occurred during the weekend
- D.** The BIOS was just upgraded

A57. A technician has just replaced a broken touch screen on a laptop used for trade shows. However, the touch functionality is no longer working on the display. Which of the following would be the MOST likely reason for this issue? (Select TWO)

- A.** The digitizer is not calibrated Quick Answer: **31**
- B.** The replacement screen is not a touch screen The Details: **91**
- C.** The BIOS needs to be updated
- D.** The display resolution is incorrect
- E.** The digitizer is not properly connected
- F.** The wireless network is conflicting with the digitizer

A58. A system administrator created a series of VMs that will use a portion of a server's available physical memory. Which of the following describes this cloud computing characteristic?

- A.** Resource pooling Quick Answer: **31**
- B.** Rapid elasticity The Details: **93**
- C.** Metered
- D.** On-demand

A59. A group of wireless laptops in a conference room are reporting intermittent connectivity issues. The wired computers in the room are not experiencing any network problems. A check of the laptops shows that the IP addresses and configurations appear to be correct. Which of the following would be the best NEXT troubleshooting step?

- A.** Verify the wireless signal strength Quick Answer: **31**
- B.** Check the ARP table on the default gateway The Details: **94**
- C.** Confirm the operation of the DHCP server
- D.** Perform a wire map on the network drops

A60. A server administrator has been asked to troubleshoot a system that has been slowing down over time. While examining the computer, the administrator can hear a series of clicks from the inside of the case. Which of the following should be the **FIRST** step to address this issue?

- A.** Replace the motherboard
- B.** Power the system off and back on
- C.** Replace the hard drive
- D.** Perform a full backup of the server
- E.** Replace the power supply

Quick
Answer: **31**

The Details: **95**

A61. When pressing the power button on a desktop computer, the power indicator lights up but the computer does not display any message on the screen. The voltage at the wall outlet has been checked with a multimeter and it appears to be normal. The motherboard power connector voltage was checked, and the 12 volt pin was showing 6 volts. What is the **MOST** likely cause of this issue?

- A.** The components that use 12 volt power are faulty
- B.** The power supply is faulty
- C.** The wall outlet voltage does not match the power supply
- D.** The motherboard is faulty

Quick
Answer: **31**

The Details: **96**

A62. A manager in the marketing department is printing many copies of a twenty page document. The manager would like to print all twenty pages of the document before the next copy begins printing. What setting should the manager configure in the output settings?

- A.** Duplex
- B.** Collate
- C.** Quality
- D.** Orientation

Quick
Answer: **31**

The Details: **97**

- A63.** A remote user is visiting their corporate office. They are trying to connect their laptop to the office wireless network, but the network name does not appear in the list of available wireless networks. Which of the following would be the most likely reason for this issue?
- A.** There is interference with the wireless signal
 - B.** The laptop has been assigned an APIPA address
 - C.** The user does not have permission to use the wireless network
 - D.** SSID broadcasts have been disabled
- A64.** A manager is able to receive email messages on their tablet, but they're having problems configuring the tablet to send email messages. Which of the following should be the FIRST troubleshooting step?
- A.** Check the SMTP settings
 - B.** Check the IP address configuration
 - C.** Send a test message using web-based email
 - D.** Check the IMAP settings
- A65.** A user is reporting that a shared laser printer in the marketing department is not printing from one particular application. The front panel of the printer shows that the printer is online and ready to receive print jobs. Other users in the department are able to successfully print to the printer. Which of the following would be the BEST next troubleshooting step?
- A.** Power cycle the printer
 - B.** Restart the print spooler
 - C.** Perform a test print from the printer console
 - D.** Verify the network printer name in the application

Quick
Answer: **31**

The Details: **98**

Quick
Answer: **31**

The Details: **99**

Quick
Answer: **31**

The Details: **100**

- A66.** A network administrator is connecting four company locations that reside in different countries. Which of the following would BEST describe this configuration?
- A. LAN
 - B. PAN
 - C. MAN
 - D. WAN
- Quick Answer: 31
The Details: 101
- A67.** A new SOHO remote site includes the installation of IoT lights, thermostats, and cameras. Which of the following would be the BEST way to protect the rest of the network against IoT hacking?
- A. Use WPA2 encryption
 - B. Configure SSID suppression on the wireless network
 - C. Connect the IoT devices to a DMZ
 - D. Configure static IP addressing
- Quick Answer: 31
The Details: 102
- A68.** A system administrator has configured a VM for dual processors, 16 GB of RAM, and 120 GB of disk space. Which of the following is required to start this VM?
- A. Shared network address
 - B. Hypervisor
 - C. Virtual switch
 - D. Video display
- Quick Answer: 31
The Details: 103
- A69.** A site manager has found that her smartphone has a short battery life when used at work, and the battery life is normal when working from home. The work location has limited mobile service reception, but most office services are provided over the local 802.11 Wi-Fi network. The site manager does not enable Bluetooth on her smartphone. Which of the following would be the BEST way to extend the battery life of her mobile device?
- A. Disable 802.11 Wi-Fi
 - B. Disable the cellular radio at work
 - C. Replace the battery
 - D. Enable Bluetooth on the mobile device
- Quick Answer: 31
The Details: 104

- A70.** A desktop computer has just abruptly shut off, and pressing the power button doesn't restart the system. There are no fans spinning, no lights are on, and no messages appear on the display. Which of these would be the MOST likely cause of this issue?
- A.** The BIOS is configured with a startup password Quick Answer: **31**
 - B.** The LCD display backlight has failed
 - C.** The power supply is faulty The Details: **105**
 - D.** The master boot record is corrupted
 - E.** The boot sector is missing
- A71.** What kind of device is commonly used to filter traffic based on a predefined set of rules?
- A.** PoE switch Quick Answer: **31**
 - B.** Repeater
 - C.** DSL modem The Details: **106**
 - D.** Firewall
- A72.** Which of these connection types use coax to provide Internet data, voice, and video over the same wire?
- A.** DSL Quick Answer: **31**
 - B.** Cable
 - C.** ISDN The Details: **107**
 - D.** Dialup
- A73.** A desktop administrator has been asked to troubleshoot a laptop computer that beeps during the power on process while the laptop screen remains dark. Which of the following would be the best NEXT troubleshooting step?
- A.** Implement a solution Quick Answer: **31**
 - B.** Document findings
 - C.** Establish a theory The Details: **108**
 - D.** Evaluate results

A74. A manager is complaining of short battery life on their laptop when traveling. Which of the following should be disabled to provide the BEST battery conservation?

- A.** Internal speakers
- B.** Webcam
- C.** Smart card interface
- D.** Bluetooth
- E.** Touchpad

Quick
Answer: **31**

The Details: **109**

A75. A company is deploying cloud-hosted virtual desktops for training room classes. The VMs have already been configured in the cloud. Which of the following is required to access these VMs using thin clients in the training room?

- A.** High-end video cards
- B.** Separate Internet connection
- C.** Mouse, keyboard, and monitor
- D.** Category 6A cabling

Quick
Answer: **31**

The Details: **110**

A76. A technician has connected a laptop to an LCD display. The LCD display is presenting the correct information, but all of the content appears to be compressed vertically. Which of the following is the MOST likely reason for this issue?

- A.** The LCD display is faulty
- B.** The laptop display adapter is incompatible with the LCD display
- C.** The laptop resolution is incorrect
- D.** The LCD display cable is faulty

Quick
Answer: **31**

The Details: **111**

A77. An engineering firm is upgrading their storage array to include additional drive space for documents and designs. The primary goal is to provide high performance and uptime, even if two drives were to fail. Which of the following would be the BEST choice for this firm?

A. RAID 1

Quick

Answer: **31**

B. RAID 5

C. RAID 0

The Details: **112**

D. RAID 10

A78. A network administrator is installing a wireless access point in a new conference room. Which of these settings would provide the BEST security for this installation?

A. WPA2 encryption

Quick

Answer: **31**

B. SSID suppression

C. Static IP addressing

The Details: **113**

D. UPnP

E. MAC filtering

A79. A university library needs to purchase a new printer for an open study area. The primary requirement of this printer is to be as quiet as possible. Which of these printer types would be the best fit for this requirement?

A. Dot-matrix

Quick

Answer: **31**

B. Inkjet

C. Laser

The Details: **114**

D. Thermal

A80. Which of the following would be the BEST choice for reading textbooks in bright sunlight?

A. Tablet

Quick

Answer: **31**

B. Augmented reality

C. Wearable technology

The Details: **115**

D. e-Reader

A81. A company has designed an application platform to scale up when the application use increases during the day, and scale back down at night. Which of the following BEST describes this characteristic of cloud computing?

- A. Resource pooling
- B. Measured service
- C. Hybrid
- D. Rapid elasticity

Quick

Answer: 31

The Details: 116

A82. A user's tablet has stopped responding to any type of finger input on the screen. The clock and other tablet functions appear to be working. Which of the following would be the BEST way to correct this issue?

- A. Replace the screen
- B. Reset the wireless network
- C. Connect to a power source
- D. Restart the tablet

Quick

Answer: 31

The Details: 117

A83. A user would like to connect a tablet to their laptop computer using 802.11, but they are in a location without a wireless access point. Which of the following would be the BEST way to make this connection?

- A. Enable Bluetooth discovery on the tablet
- B. Configure infrastructure mode on both devices
- C. Create shared folders on the laptop computer
- D. Use ad hoc mode

Quick

Answer: 31

The Details: 118

A84. A server administrator is upgrading the memory in a web server from 16 GB of non-ECC RAM to 64 GB of ECC RAM. After starting the system with the new memory, the computer beeps and nothing is displayed on the screen. Changing the number and location of new RAM modules results in the same beeping sounds and blank screen. After replacing the original 16 GB modules, the system starts normally. Which of the following is the MOST likely reason for this issue?

- A.** The new memory is not compatible with the motherboard
- B.** The new memory is faulty
- C.** The BIOS needs to be updated
- D.** The system is overheating during the startup process

Quick
Answer: **31**

The Details: **119**

A85. A workstation has been assigned an APIPA address. Which of the following would be the MOST likely reason for this configuration?

- A.** The workstation is not connected to the wireless network
- B.** The DNS server is misconfigured
- C.** The network is using public Internet addresses
- D.** The DHCP server is down

Quick
Answer: **31**

The Details: **120**

A86. Which of the following is used to forward traffic based on a destination MAC address?

- A.** Unmanaged switch
- B.** Repeater
- C.** Router
- D.** Firewall

Quick
Answer: **31**

The Details: **121**

A87. A system administrator made some BIOS changes to a desktop computer running Windows 10, and now this message appears when starting the computer:

“This drive can only boot in UEFI mode.”

Which of the following would be the BEST next troubleshooting step?

- A.** Modify the boot drive sequence
- B.** Enable Secure Boot
- C.** Remove the BIOS password
- D.** Boot the system with the Windows setup media

Quick
Answer: **31**

The Details: **122**

A88. A user has spilled coffee on their laptop keyboard, and now the system will not start. The laptop contains a presentation for an upcoming conference. Which of the following would be the BEST way to gain access to this presentation?

- A.** Boot the system with a drive image utility
- B.** Connect an external monitor and boot from a USB drive
- C.** Boot to the Windows Recovery Environment
- D.** Remove the storage drive and place it into an external enclosure

Quick
Answer: **31**

The Details: **123**

A89. A technician is installing a DSL modem at a SOHO facility. Which of the following connectors would be used to connect the DSL modem to the Internet provider line?

- A. RS-232
- B. RJ11
- C. BNC
- D. F-connector

Quick
Answer: **31**

The Details: **124**

A90. Which of the following would be the BEST choice for capturing an image from a printed page and saving it on a computer?

- A. QR code reader
- B. Optical drive
- C. Flatbed scanner
- D. Webcam

Quick
Answer: **31**

The Details: **125**

Practice Exam A

Multiple Choice Quick Answers

A6. B	A36. A	A66. D
A7. A	A37. C	A67. C
A8. C	A38. C	A68. B
A9. B	A39. B	A69. B
A10. B	A40. B	A70. C
A11. D	A41. A	A71. D
A12. A	A42. C	A72. B
A13. B	A43. C	A73. C
A14. B	A44. A	A74. D
A15. A	A45. C	A75. C
A16. B	A46. C	A76. C
A17. D	A47. A	A77. D
A18. A	A48. B	A78. A
A19. A	A49. A	A79. D
A20. C	A50. D	A80. D
A21. A and C	A51. B	A81. D
A22. A	A52. B and D	A82. D
A23. A	A53. B	A83. D
A24. A and E	A54. C	A84. A
A25. C	A55. A	A85. D
A26. D	A56. A	A86. A
A27. B and E	A57. B and E	A87. B
A28. C and E	A58. A	A88. D
A29. B	A59. A	A89. B
A30. D	A60. D	A90. C
A31. A	A61. B	
A32. C	A62. B	
A33. C	A63. D	
A34. D and E	A64. A	
A35. B	A65. D	

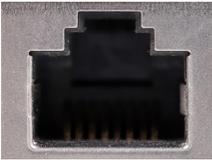
Practice Exam A

A1. Match the interface name to the picture:



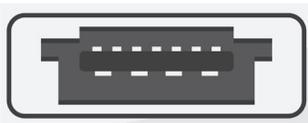
Lightning

Lightning connectors are Apple proprietary connectors that provide an 8-pin digital signal between a mobile device and a computer.



RJ45

RJ45 connectors are 8P8C (Eight position, eight conductor) interfaces, and are commonly used for Ethernet network connections.



eSATA

eSATA (External Serial ATA) is a storage device connector designed for the outside of computer and mobile device cases.



Micro-USB

The relatively small micro-USB connector is commonly used to connect mobile devices to computers.



DB-9

DB-9 connectors are often used to communicate with modems, management interfaces, and any other RS-232 serial devices.



USB-C

USB-C connectors are an increasingly common USB connector that can be used to connect and power external devices. The USB-C connector is reversible, so it can be inserted into an interface without maintaining a particular orientation.



More information:

220-1001, Objective 3.2 - Connectors

<https://professormesser.link/1001030201>

A2. Order these technologies from fastest throughput to slowest:

Thunderbolt 3 - 40 gigabits per second

SATA Revision 3.0 - 6 gigabits per second

USB 3.0 - 5 gigabits per second

1000BASE-T - 1 gigabit per second

FireWire 800 - 800 megabits per second

802.11g - 54 megabits per second

It's useful to know the functionality and limitations of common technologies, and these will become especially useful for questions asking for the best possible option for transferring data.



More information:

220-1001 - Section 3.1 - Cables and Adapters

<https://professormesser.link/2201001>

A3. Match the port number to the protocol. Not all port numbers will be used.

tcp/443

HTTPS - HyperText Transfer Protocol Secure

tcp/389

LDAP - Lightweight Directory Access Protocol

udp/53

DNS - Domain Name System

tcp/143

IMAP - Internet Message Access Protocol

udp/161

SNMP - Simple Network Management Protocol

tcp/3389

RDP - Remote Desktop Protocol

tcp/22

SSH - Secure Shell

Port numbers can be challenging to memorize, so you may want to consider adding some firewall rules in Windows Firewall or any third-party firewall front-end. Once you create firewall rules and work with some of the port numbers, you'll find that they're much easier to remember..

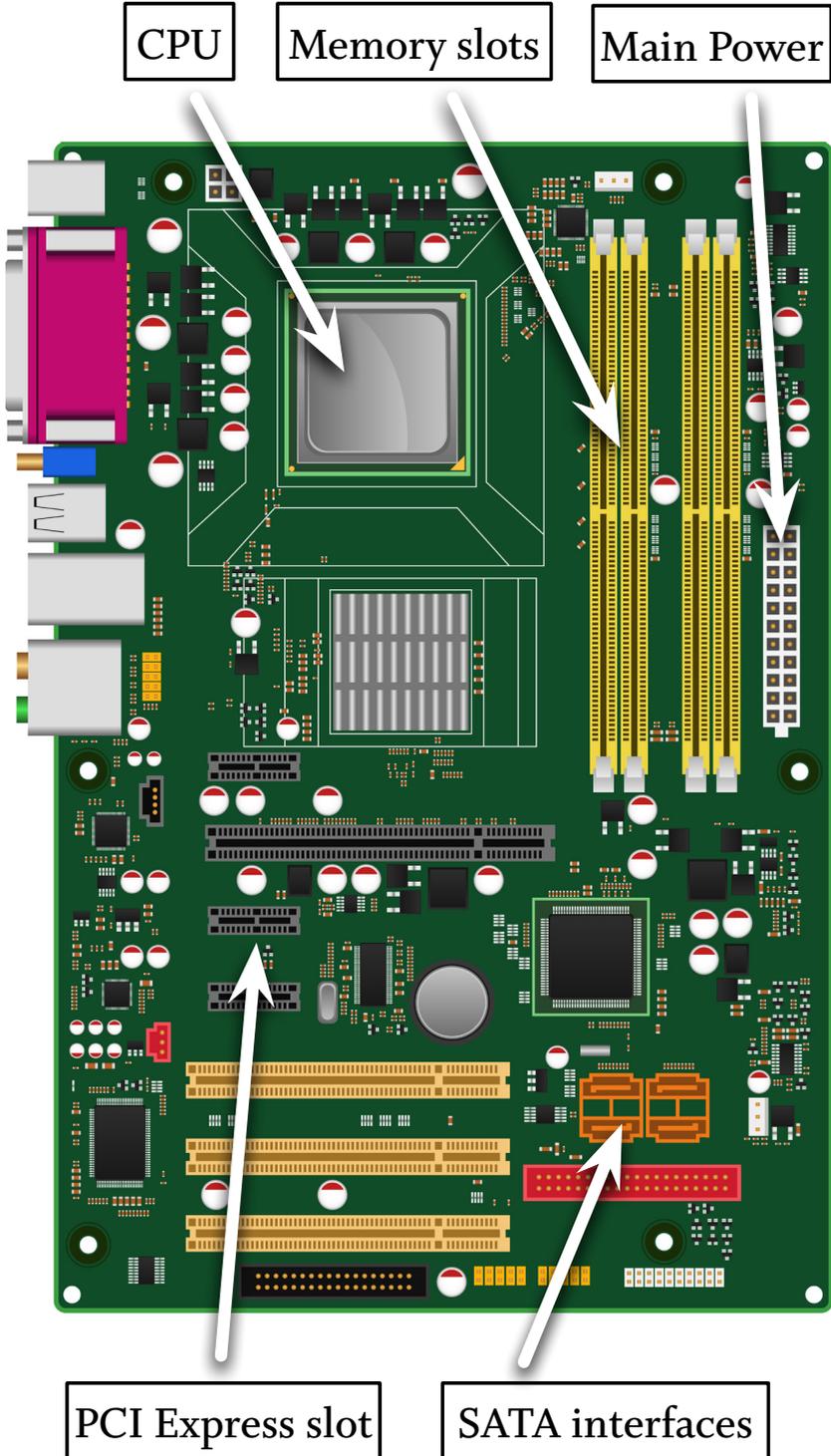


More information:

220-1001, Objective 2.1 - Common Network Ports

<https://professormesser.link/1001020102>

A4. Identify the components on this motherboard:



A5. Configure a RAID array with these characteristics:

- Data remains available if a single drive fails
- Most efficient use of drive space
- Fastest access time
- Total storage size is not a priority

Select the RAID type and configure the three drive bays using the available drives.

The drives can be used multiple times, and not all drives will be used.



This question can be separated into two parts; deciding which type of RAID (Redundant Array of Independent Disks) to use, and choosing drives that meet the requested criteria.

Since data must be available if a drive fails, RAID 0 cannot be used. Four drives are required for RAID 1+0, so the only options remaining are RAID 1 and RAID 5. The most efficient use of drive space from those two options is RAID 5.

The fastest access time on the available drives is the 15,000 RPM (revolutions per minute) SATA III hard drive (The faster the RPMs, the better the access time). Although the 1 TB (terabyte) of available drive space is not the largest of the available drives, the requirements state that the storage size is not a priority.



More information:

220-1001, Objective 3.4 - RAID

<https://professormesser.link/1001030402>

Detailed Answers

A6. The printer in the accounting department has stopped all printing processes. The print queue shows that there are seven jobs in the queue that are waiting to be printed. Which of the following would be the BEST next troubleshooting step?

- A.** Send a test job to the printer and move it to the top of the queue
- B.** Restart the printer's spooler
- C.** Install an updated version of the printer driver
- D.** Delete everything in the queue and resend the print jobs

The Answer: B. Restart the printer's spooler

The print spooler is the software responsible for storing print jobs and sending them to the printer. If the printer spooler has failed or has stopped, then none of the print jobs will be sent to the printer.

The incorrect answers:

A. Send a test job to the printer and move it to the top of the queue

Since the print spooler is the issue, it won't matter where a print job might be in the queue. A test print job will sit at the top of the queue just like any other print job.

C. Install an updated version of the printer driver

The printer driver on a client workstation is responsible for formatting the print job in a way that the printer can properly interpret during the printing process. Changing the print driver won't fix problems with the print spooler.

D. Delete everything in the queue and resend the print jobs

If the spooler is having problems, then deleting the print jobs will only require users to resend the print requests, which will then sit in the queue and not print.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- A7.** A system administrator has connected an external USB drive to a computer to transfer some documents. When booting the computer, the system tries to boot from the external drive and gives an error message. Which of the following would be the BEST way to prevent the USB drive from booting?
- A.** Modify the BIOS to boot from the internal hard drive
 - B.** Modify the boot order in Windows Disk Management
 - C.** Rebuild the MBR on the external hard drive
 - D.** Disable the external drive in Device Manager

The Answer: **A.** Modify the BIOS to boot from the internal hard drive
The boot order is managed in the system BIOS, and one way to avoid the computer from attempting to boot from an external storage device is to move the internal drive to have a higher boot priority.

The incorrect answers:

B. Modify the boot order in Windows Disk Management
Windows Disk Management is not used to configure the boot order of the computer. By the time Windows has loaded, the boot order has already been determined. The boot order is configured in the system BIOS.

C. Rebuild the MBR on the external hard drive
Rebuilding the MBR (Master Boot Record) of the external hard drive will not prevent the computer from attempting to boot to the drive. Rebuilding the MBR would only be necessary if the boot record was erased or damaged.

D. Disable the external drive in Device Manager
Since Windows Device Manager is only active after the system boots, disabling the external drive would not prevent the boot process. Disabling the drive in Device Manager would only prevent Windows from accessing the drive once the system was booted.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- A8.** A computer has been configured with an SSD, a high-end video adapter, and the maximum amount of RAM. Which of the following would be the MOST likely use for this computer?
- A. Thin client
 - B. Network attached storage device
 - C. CAD/CAM workstation
 - D. VDI client

The Answer: C. CAD/CAM workstation

The graphical designs created by a CAD/CAM (Computer Aided Design / Computer Aided Manufacturing) computer requires high-speed SSD (Solid State Drive) storage, high-end video, and as much RAM as possible.

The incorrect answers:

A. Thin client

A thin client is a computer with the minimum hardware resources required to perform a remote desktop or remote control function. The applications used on a thin client are run on a remote server, so the local device does not require any high-end components.

B. Network attached storage device

A NAS (Network Attached Storage) server requires plenty of storage and high-speed networking, but does not require advanced video functionality.

D. VDI client

VDI (Virtual Desktop Infrastructure) clients display applications that are running on other servers, and it's very common to run VDI clients on thin clients or other minimally-configured systems.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- A9.** A network connection in a conference room was installed years ago, and there's no documentation for the cable run. Connecting a device to the cable results in a successful Ethernet connection, so the other end of the cable should terminate somewhere in the wiring closet. Which of these tools would be the best choice to find the other end of the network connection?
- A. Cable tester
 - B. Tone generator
 - C. Multimeter
 - D. Crimper

The Answer: B. Tone generator

A tone generator is used to produce an analog tone on one the cable, and an inductive probe is used to identify the location of the cable on the other end.

The incorrect answers:

A. Cable tester

A cable tester could be used to confirm the wire map of the cable, but you would first need to locate both ends before that would be possible. A cable tester doesn't provide a way to locate both ends of a cable.

C. Multimeter

A multimeter could be used to verify continuity and the wire map of the cable, but both ends of the cable would need to be close to the multimeter. A multimeter can't be used to locate both ends of a cable.

D. Crimper

If the RJ45 connector on the cable was faulty, a crimper could be used to attach a new connector to the cable.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

A10. A client's laptop has recently had its internal mini-PCIe wireless adapter card replaced. Although Device Manager shows the card working properly, the wireless card management software shows very low signal strength. The wireless card keeps dropping its wireless connection and will not maintain a consistent network link. What is the most likely reason for this problem?

- A. The mini-PCIe card isn't compatible with the laptop
- B. The wireless adapter antenna cable isn't connected
- C. The operating system doesn't support the wireless card
- D. The wireless card is administratively powered off

The Answer: B. The wireless adapter antenna cable isn't connected
The antenna cable connectors are very small, and it's easy to leave them disconnected after working inside of a laptop. A missing antenna cable will cause the wireless signal strength to be very low, and often there's not enough signal strength to reliably send or receive data.

The incorrect answers:

A. The mini-PCIe card isn't compatible with the laptop
The mini-PCIe (mini-Peripheral Component Interconnect Express) standard will install into any laptop's mini-PCIe interface. If the laptop was not compatible, the shape and physical format of the interface would not allow the adapter to be installed.

C. The operating system doesn't support the wireless card
An incompatible mini-PCIe adapter would not be usable by the operating system. In this example, the adapter card was operational except for the low network signal.

D. The wireless card is administratively powered off
If the adapter was powered off, it would not have been able to show signal strength data in the operating system.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- A11.** A user has powered on their computer and received the message “Operating system not found.” A check of the system shows that the hard drive cables are properly connected. Which of the following would be the NEXT best troubleshooting step?
- A. Boot to Safe Mode
 - B. Replace the boot drive
 - C. Restore from a known good backup
 - D. Check for removable drives

The Answer: D. Check for removable drives

If a USB (Universal Serial Bus) storage device is connected to a computer and the BIOS (Basic Input/Output System) is checking USB devices before the primary storage drive, the "Operating system not found" error could appear with some USB devices. To avoid this error, the boot order in the BIOS can be changed, or the USB device can be disconnected during the boot process and reconnected after the operating system has started.

The incorrect answers:

A. Boot to Safe Mode

Safe Mode is a Windows mode that will launch the operating system with minimal services and OS requirements. Safe Mode requires a bootable drive, so the error message in this question would prevent Safe Mode from starting.

B. Replace the boot drive

There's not enough information to determine if the boot drive is bad or faulty, so immediately replacing it would be premature. If there aren't any removable storage devices connected to the system, then running hardware diagnostics of the drive would be a good next step before considering a hardware replacement.

C. Restore from a known good backup

This question doesn't provide enough information about the state of the primary boot drive, so making any significant changes to the data on the drive would not be the best next step.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

A12. A user is having an issue with a smartphone not recognizing their location on a map. All other Internet and phone features are working properly. Which of the following would be the MOST likely cause of this issue?

- A. GPS is disabled
- B. The battery is low
- C. Wi-Fi is enabled
- D. Storage space is low

The Answer: A. GPS is disabled

The GPS (Global Positioning System) option on a smartphone provides precise location services for apps and utilities. The map feature on the smartphone uses the GPS to help determine the location, speed, and direction of the user.

The incorrect answers:

B. The battery is low

Although some mobile devices will minimize unnecessary services when the battery is low, a notification is usually provided to inform the user of this situation. A low battery would not be the most likely reason for the GPS to be disabled.

C. Wi-Fi is enabled

Wi-Fi would actually help with location services, especially when a clear view of the sky and GPS satellites is not available. Enabling Wi-Fi would not cause any issues with apps that need location services.

D. Storage space is low

Location services do not require any significant storage space on a smartphone, so a lack of storage would not cause any issues with apps that need to use location services.



More information:

220-1001, Objective 5.5

Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

- A13.** A client's laptop sounds like it is booting normally, but nothing appears on the LCD display. After closer inspection, you notice the output is visible but it's too faint to clearly see anything. What is the MOST likely cause of this issue?
- A. Video card
 - B. Inverter
 - C. Video driver
 - D. Power adapter

The Answer: B. Inverter

The inverter powers the CCFL (Cold Cathode Fluorescent Lamp) LCD (Liquid Crystal Display) backlight, allowing you to easily view the pixels on the display. Most newer laptops will use LED (Light Emitting Diode) backlights that use the existing DC (Direct Current) power and don't require an inverter.

The incorrect answers:

A. Video card

A faulty video card might cause the video display to stop working completely, or the information on the screen may be corrupted. A faulty video adapter does not commonly cause the display to have a decreased backlight setting.

C. Video driver

Bad video drivers often cause issues with resolution settings or aspect ratios, but a bad video driver does not commonly affect the backlight settings.

D. Power adapter

A bad power adapter would cause a laptop to fail during the boot process or fail to properly charge a battery. A bad power supply would not usually cause everything to work properly except for the backlight.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

A14. A graphics designer is experiencing increasing delays when accessing files on her hard drive. The user maintains a daily backup of all data on the drive. Which of these would be the BEST next troubleshooting step for this issue?

- A. Reinstall Windows
- B. Perform a hard drive diagnostic
- C. Restore from the daily backup
- D. Boot to Safe Mode

The Answer: B. Perform a hard drive diagnostic

Before making any changes, it would be useful to gather more information about this problem. A hardware diagnostic would determine if the hard drive itself is working properly. If the hard drive is operating normally, the troubleshooting process can then shift to the operating system and software.

The incorrect answers:

A. Reinstall Windows

Reinstalling Windows won't help if the hard drive is not operating properly. The reinstallation process is also a time-consuming and is a significant change, so it's important to know if the underlying hardware is working.

C. Restore from the daily backup

The root cause of this issue hasn't been identified, so any significant change to the user's data would be premature. The user may have also modified some of this data since the backup was taken, so restoring the backup could potentially lose data.

D. Boot to Safe Mode

Safe Mode will start Windows with a minimal configuration, and this could help troubleshoot software issues with the operating system itself. Before analyzing the software, it would be important to know if the underlying hardware is working properly.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

A15. Which of the following would be MOST likely found on a DVD-ROM?

- A. Document archive
- B. Operating system boot files
- C. RAID parity files
- D. BIOS configurations

The Answer: A. Document archive

The DVD-ROM (Digital Versatile Disc - Read Only Memory) format has the advantage of a relatively large storage area and the ability to write once and never worry about an accidental deletion. The storage of documents and other files is a common use of DVD-ROM optical discs.

The incorrect answers:

B. Operating system boot files

Although it is possible to boot an operating system from a DVD-ROM, it's not a common use of the format. It's much more common to store operating system files on a local storage drive with a higher storage capacity and throughput, such as a hard drive or SSD (Solid-State Drive).

C. RAID parity files

A RAID (Redundant Array of Independent Disks) array requires that all of the data and parity information reside on the local storage drives. Parity information would not be stored on a DVD-ROM disc.

D. BIOS configurations

BIOS configurations need to be accessible from the motherboard of a computer, and not from other storage devices. BIOS configurations would not be found on a DVD-ROM disc.



More information:

220-1001, Objective 3.4 - Storage Devices

<https://professormesser.link/1001030401>

A16. When a user starts their computer, the screen remains blank and the computer beeps twice. Which of these would be the MOST likely cause of this issue?

- A. The boot device is not connected
- B. The memory is faulty
- C. The operating system has become corrupted
- D. The PC is infected with malware

The Answer: B. The memory is faulty

The POST (Power On Self Test) is the initial hardware check that occurs during the startup process. If a major hardware component is faulty, the computer will beep and a message will be displayed on the screen. If the issue is related to a critical component, the computer will not be able to display a message on the screen and instead will beep a certain number of times as a code to specify the error.

The incorrect answers:

A. The boot device is not connected

A missing boot device would display the normal BIOS startup and display a message on the screen for "No Boot Device Found."

C. The operating system has become corrupted

A bad operating system would display the normal BIOS startup messages. When the operating system attempted to load, the OS will provide error messages on the screen for any issues related to the corrupted files.

D. The PC is infected with malware

A malware infection would not commonly cause a system to boot with a blank screen and a beep code. Malware would be identified once the operating system has started.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

A17. A firewall is configured to block email transfers from a remote server. Which of the following ports is the firewall blocking?

- A. 443
- B. 22
- C. 23
- D. 25

The Answer: D. 25

Port 25 is used by SMTP (Simple Mail Transfer Protocol) to send email messages from devices and transfer those messages between SMTP email servers.

The incorrect answers:

A. 443

Port 443 is commonly used by web browsers to transfer information using SSL (Secure Sockets Layer) or TLS (Transport Layer Security) encryption protocols.

B. 22

The SSH (Secure Shell) protocol uses port 22 as an encrypted terminal communication. SSH is commonly used to access the command line terminal of remote devices and servers.

C. 23

Port 23 is used by Telnet for non-encrypted terminal communication between devices.



More information:

220-1001, Objective 2.1 - Common Network Ports

<https://professormesser.link/1001020102>

A18. A technician is connecting a laptop to an LCD projector in a conference room. The display on the laptop works properly, but the projector image is constantly flickering and pixelating. The technician has modified the resolution and refresh rates, but the projector image continues to flicker. Which of the following would be the BEST next troubleshooting step?

- A. Replace the video cable
- B. Disable the laptop display
- C. Replace the projector bulb
- D. Power cycle the projector

The Answer: A. Replace the video cable

A display issue associated with flickering and poor video quality would commonly point to the connection between the video adapter and the display device. In the case of an LCD (Liquid Crystal Display) projector, there's sometimes a very long (and very worn) cable that can cause signal issues to show on the projected image.

The incorrect answers:

B. Disable the laptop display

Disabling the laptop display won't help with any signal problems, and would probably hinder the troubleshooting process because you wouldn't be able to properly see the display information due to all of the flickering and pixelating.

C. Replace the projector bulb

The bulb in an LCD projector either works or doesn't, so it will be very obvious if the bulb is faulty. In this example, the projector bulb is working, but the information displayed on the projector is an issue.

D. Power cycle the projector

The projector itself would not commonly cause any display flickering or image problems, so power cycling the projector wouldn't normally resolve this type of problem. If all other troubleshooting tasks fail, then power cycling everything might be an option, but it wouldn't be the first troubleshooting step.



More information:

220-1001, Objective 5.4 - Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

- A19.** The stylus on a Windows tablet will no longer interact with the user interface. Which of these would be the MOST likely cause of this issue?
- A. Digitizer
 - B. Backlight
 - C. Antennas
 - D. Inverter

The Answer: A. Digitizer

The digitizer is the component in a touch screen that converts the analog input from a fingerprint or stylus into a digital input that can be understood by the computer. If the digitizer is having an issue, then problems will occur with any direct screen input.

The incorrect answers:

B. Backlight

An LCD screen does not produce any light, so a backlight is used to make the screen bright enough to see. The brightness of the screen does not have any effect on the stylus.

C. Antennas

There are a number of antennas in a computer for 802.11 networks and Bluetooth connections. The stylus does not use any of these antennas.

D. Inverter

An inverter is used in older LCDs (Liquid Crystal Displays) to invert DC (Direct Current) power into AC (Alternating Current) power. This AC power is used by CCFL (Cold Cathode Fluorescent Lamp) backlights. Most of the newer LCD displays contain LED (Light Emitting Diode) backlights that use the existing DC power and do not require an inverter.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

A20. A user in the accounting department needs to output a form on the laser printer that prints on both sides of the page. Which of the following options should be configured in the accounting software?

- A. Collate
- B. Orientation
- C. Duplex
- D. Resolution

The Answer: C. Duplex

The duplex setting prints the output on both sides of the page, and a printer that supports duplexing will flip the page over without any manual intervention from the user.

The incorrect answers:

A. Collate

When printing multiple copies, the collate option will print all of the pages in a document before printing the next copy.

B. Orientation

The orientation setting will change the output between portrait or landscape. The orientation option will not change which sides of the page are used.

D. Resolution

The resolution setting will modify the number of dots per inch used for the output. A larger number of dots per inch will increase the resolution and make the text and images appear sharper on the page.



More information:

220-1001, Objective 3.10

SOHO Multifunction Devices

<https://professormesser.link/1001031001>

A21. A user needs to connect their laptop to the wired Ethernet network, but the laptop does not have an integrated Ethernet interface. Which of the following would allow the laptop to connect to an Ethernet network? (Pick TWO)

- A. Docking station
- B. VGA interface
- C. USB to Ethernet adapter
- D. DisplayPort to HDMI cable
- E. DVI to HDMI adapter
- F. Bluetooth

The Answer: A. Docking station

C. USB to Ethernet adapter

There are a few ways to create a wired Ethernet connection on a laptop computer. Using a docking station is a common solution that provides many different interfaces, and often includes the ability to install a full-size PCI Express (Peripheral Component Interconnect Express) adapter. A USB (Universal Serial Bus) to Ethernet adapter is a simpler solution that only provides an Ethernet interface, but it's much more portable than a docking station.

The incorrect answers:

B. VGA interface

A VGA (Video Graphics Array) interface is an interface for video output and does not provide Ethernet connectivity.

D. DisplayPort to HDMI cable

Both DisplayPort and HDMI (High-Definition Multimedia Interface) provide video output and are not used for Ethernet on a laptop computer.

E. DVI to HDMI adapter

DVI (Digital Visual Interface) and HDMI are video interfaces and do not provide a wired Ethernet link.

F. Bluetooth

Bluetooth is a wireless PAN (Personal Area Network), and it does not provide wired Ethernet connectivity.



More information:

220-1001, Objective 3.1 - Adapters and Converters

<https://professormesser.link/1001030108>

A22. A server administrator has received an alert showing that one drive in a RAID 1 array has failed. Which of the following would be the best way to resolve this alert?

- A. Replace the bad drive and resync the array
- B. Replace all drives in the array and resync the array
- C. Replace the bad drive and restore from backup
- D. Convert the array to RAID 0 and replace the drive
- E. Replace all drives in the array and restore from backup

The Answer: A. Replace the bad drive and resync the array

A RAID 1 (Redundant Array of Independent Disks, level 1) array is a mirrored array, which means that all of the information on one physical drive is also copied and maintained on a separate drive. If one drive fails, then the drive with the redundant data continues to be available. To repair the array, the bad drive needs to be replaced and the data from the redundant drive is synchronized to the new drive.

The incorrect answers:

B. Replace all drives in the array and resync the array

A RAID 1 array continues to run after a drive outage, and all data continues to be available. There's no reason to replace all of the drives in the array, and if all drives were replaced there would be nothing to resync.

C. Replace the bad drive and restore from backup

Since no data is lost after a single drive failure in a RAID 1 array, restoring from backup is not necessary.

D. Convert the array to RAID 0 and replace the drive

RAID 0 is striping data across drives, and there is no redundancy in a RAID 0 array. It's not common to convert arrays between RAID levels, and a conversion is not necessary to restore full functionality to this RAID 1 array.

E. Replace all drives in the array and restore from backup

There's no need to restore from backup when replacing a single drive in a RAID 1 array.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

A23. A system administrator is building a server for a data center in another country. The server will manage a print queue and provide a local storage partition for temporary file transfers. Which of the following power supply specifications will be the MOST important for this server?

- A. Voltage input options
- B. Number of PCIe connectors
- C. Modular cabling
- D. Fan noise rating

The Answer: A. Voltage input options

Connecting to the power source in a different country is an important consideration when selecting a power supply. If the voltage specifications are incorrect, the server may not operate at all or components in the server may be damaged. Many servers use auto-switching power supplies are compatible with the power systems in other countries.

The incorrect answers:

B. Number of PCIe connectors

PCIe (Peripheral Component Interconnect Express) is a standard bus type, and some of the adapters on this bus may require additional power. However, none of the requirements of this server would need more PCIe connectors than a standard power supply.

C. Modular cabling

Using a power supply with modular cables can help with airflow, but this modularity isn't a requirement for most systems. Most data centers are climate controlled, so it shouldn't be difficult to maintain a reasonable temperature with a non-modular power supply.

D. Fan noise rating

A data center is usually quite noisy, so the noise rating of a power supply is not going to be a significant concern.



More information:

220-1001, Objective 3.7 - Computer Power

<https://professormesser.link/1001030701>

A24. Which of the following ports are used for file transfers? (Select TWO)

- A. 21
- B. 110
- C. 25
- D. 23
- E. 20
- F. 53

The Answer: A. 21 and E. 20

FTP (File Transfer Protocol) is a standard method of transferring files across different operating systems. FTP uses TCP (Transmission Control Protocol) port 21 for control messages and port 20 to transfer data.

The incorrect answers:

B. 110

Port 110 is the default port for POP3 (Post Office Protocol version 3). POP3 is commonly used to retrieve email messages from an email server into a local email client application.

C. 25

Another common email protocol is SMTP (Simple Mail Transfer Protocol), which uses port 25 for sending mail to a mail server and to transfer email messages between mail servers.

D. 23

Non-encrypted (in-the-clear) terminal communication is provided with the Telnet (Telecommunication Network) protocol over port 23.

F. 53

Port 53 is the default port for DNS (Domain Name System). DNS is commonly used to convert fully qualified domain names to IP addresses.



More information:

220-1001, Objective 2.1 - Common Network Ports

<https://professormesser.link/1001020102>

A25. Which of these technologies do not require a backlight to provide a viewable display?

- A. LCD
- B. IPS
- C. OLED
- D. LED

The Answer: C. OLED

An OLED (Organic Light Emitting Diode) display emits light when a current is provided to an organic compound, so a backlight would not be necessary with an OLED display.

The incorrect answers:

A. LCD

An LCD (Liquid Crystal Display) screen does not produce any light, so a backlight is required to see the screen contents. Most LCD displays use LEDs (Light Emitting Diodes) or CCFLs (Cold Cathode Fluorescent Lamps) as a backlight.

B. IPS

IPS (In Plane Switching) LCD monitors provide excellent color representation, but they are still LCD displays that require a backlight.

D. LED

LED is a type of backlight that is commonly used on LCD displays.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

- A26.** A system administrator has tripped over an Ethernet cable and the cable's RJ45 connector has broken. Which of the following should be used to resolve this issue?
- A. Punch-down tool
 - B. Tone generator and probe
 - C. Cable tester
 - D. Crimper

The Answer: D. Crimper

A crimper is used to attach a modular connector to a cable. In this example, a new connector can be reattached to the cable using an RJ45 (Registered Jack type 45) crimper.

The incorrect answers:

A. Punch-down tool

A punch-down tool is used to connect wires to punch-down blocks, such as a 110 block. A punch-down tool can't be used to attach a new RJ45 connector to a cable.

B. Tone generator and probe

Tone generators and inductive probes are used together to find the two ends of a cable run. Toner probes are not used to connect RJ45 connectors.

C. Cable tester

Cable testers can identify the wire map of a cable. Once the crimper has been used to attach the RJ45 connector, the cable tester can confirm that the connector is properly wired. Cable testers are not used to connect modular connectors to a cable.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

A27. A network administrator is troubleshooting a network outage, and she believes that the issue is related to a bad switch. The old switch is replaced with a newer model and the cabling is moved to the new switch. Which of the following should be the NEXT troubleshooting steps? (Choose TWO)

- A. Test the theory
- B. Verify full system functionality
- C. Establish a plan of action
- D. Identify the problem
- E. Document the findings

The Answers: B. Verify full system functionality, and
E. Document the findings

Once the theory has been tested, a plan of action has been determined, and the plan has been implemented, it's important to verify that full system functionality has been restored. After all of this work, it's useful to document the problem, the proposed solutions, and the ultimate fix. This problem might occur again, and it would be useful to have some historical documentation on how to address the issue.

The incorrect answers:

A. Test the theory

The testing of possible theories should occur before making any changes. In this example, the replacement of the switch is the theory that was tested in the lab prior to implementation.

C. Establish a plan of action

The plan of action was created prior to the replacement of the switch. The plan design might be relatively simple or may have a complex set of processes. The complexity of the plan generally depends on the organization and the type of problem.

D. Identify the problem

Identifying the problem is the first step in the troubleshooting process. Before you can resolve an issue, it's important to fully understand what might not be working.



More information:

220-1001, Objective 5.1 - How to Troubleshoot

<https://professormesser.link/1001050101>

A28. A gaming enthusiast is building her own computer to provide the best performance with 3D action games. Which of these would be the most important components of a gaming PC? (Choose TWO)

- A. RAID array
- B. Small form factor
- C. High-end GPU
- D. Built-in tuner
- E. SSD
- F. Network-connected printer

The Answers: C. High-end GPU, and E. SSD

The GPU (Graphics Processing Unit) is an important consideration when building a gaming computer. Many computer games also read extensively from storage, so the speed of an SSD (Solid State Drive) will provide the fastest possible data access.

The incorrect answers:

A. RAID array

A RAID array (Redundant Array of Independent Disks) is useful when uptime is an important priority. Since gaming is generally considered a leisure activity, ensuring one-hundred percent uptime isn't usually associated with this uptime requirement.

B. Small form factor

A small form factor refers to the size of the computer case, and gaming systems don't usually need to fit in a small cabinet or a limited space.

D. Built-in tuner

Television tuners are useful when capturing television signals, but gaming systems don't often need this functionality.

F. Network-connected printer

Printers are useful for sharing physical documents and other files, but they have limited use for a gaming system.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

A29. What type of device connects multiple computers to the network, but becomes less efficient as network traffic increases?

- A. Switch
- B. Hub
- C. Repeater
- D. Router

The Answer: B. Hub

A hub operates as a multi-port repeater, where incoming traffic is repeated to every other port in the hub. If more than one device attempts to do this at the same time, these conflicting signals are called a collision. Each time a collision occurs, the sending devices have to stop transmitting, wait a random amount of time, and try sending traffic again. If many devices are sending large amounts of data, the overall network efficiency will decrease as the number of collisions increase.

The incorrect answers:

A. Switch

A switch makes forwarding decisions based on destination MAC (Media Access Control) address and can communicate over full-duplex links. This communication method ensures that no collisions can occur.

C. Repeater

The relatively simple forwarding process of a repeater ensures that slowdowns will not occur as network traffic increases.

D. Router

Routers forward traffic based on the destination IP address, and this process does not create an inefficiency as the network traffic increases.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

A30. In which of the following would a Lightning cable MOST likely be used?

- A.** Connect a server to a display monitor
- B.** Increase the available memory of a device
- C.** Remotely control a mobile device
- D.** Charge a mobile device

The Answer: D. Charge a mobile device

The Lightning interface is a proprietary interface used exclusively on mobile devices from Apple. The Lightning interface is a common connection for data transfers and power charging for most Apple mobile devices.

The incorrect answers:

A. Connect a server to a display monitor

Although there are video output adapters available for Lightning connectors, these options are currently only available for Apple's phones and tablets and is not used on standalone computers or servers.

B. Increase the available memory of a device

Although there are options to provide external storage using a lightning connection, the memory used in an Apple mobile device is limited to the installed internal RAM (Random Access Memory).

C. Remotely control a mobile device

Although there are remote control options available for Apple devices, these solutions use an existing network connection and do not use the Lightning interface.



More information:

220-1001, Objective 3.1 - Multipurpose Cables

<https://professormesser.link/1001030104>

- A31.** A network administrator would like to enable DHCP on a laptop, but he would like the same IP address to be assigned to the laptop each time it starts. Which of the following would provide this functionality?
- A. Create an IP reservation on the DHCP server
 - B. Administratively configure the laptop's MAC address
 - C. Use APIPA addressing
 - D. Assign the laptop to a static IP VLAN

The Answer: A. Create an IP reservation on the DHCP server
A DHCP (Dynamic Host Configuration Protocol) server will automatically assign IP (Internet Protocol) addresses to devices on the network from an available pool. This means that the IP address for a device may change over time based on the IP addresses that are currently available in the pool. To force the same IP address assignment each time, the network administrator can create an IP reservation in the DHCP server that will associate a specific IP address to the MAC (Media Access Control) address of the laptop.

The incorrect answers:

B. Administratively configure the laptop's MAC address
The MAC address of a device will rarely need to be changed through an administrative configuration, and administratively configuring the MAC address will not permanently assign a particular IP address.

C. Use APIPA addressing
APIPA (Automatic Private IP addressing) can provide limited networking when a DHCP server is not available, but APIPA addressing does not provide any static or permanent IP addressing on a device.

D. Assign the laptop to a static IP VLAN
VLANs (Virtual Local Area Networks) are commonly used to segment the network into individual broadcast domains. Assigning a device to a particular VLAN does not provide a method of static or permanent IP addressing on a device.



More information:

220-1001, Objective 2.6 - Assigning IP Addresses

<https://professormesser.link/1001020602>

A32. A user is complaining about slow network performance from their workstation. A network technician checks the data closet and finds that the wires are not properly seated in the 110 block. Which of the following should the technician use to correct this issue?

- A. Crimper
- B. Multimeter
- C. Punch-down tool
- D. Cable tester

The Answer: C. Punch-down tool

A punch-down tool is used to firmly "punch" a wire into a wiring block, such as a 110 block. These blocks are usually located in a wiring closet or on the back of a patch panel.

The incorrect answers:

A. Crimper

A crimper is used to fasten the modular connector onto the end of a cable. For Ethernet, a crimper fastens the RJ45 connector used by the workstation or laptop.

B. Multimeter

A multimeter can be used to check for voltages or continuity, but it won't help fasten wires to a 110 block.

D. Cable tester

Cable testers can identify the wire map on a cable to ensure that the punch-down or crimping process has been performed properly. After punching down this connection, the technician could use a cable tester to validate that all of the wires are now properly connected.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

- A33.** A user has just connected to a new wireless network, but they cannot view any Internet web sites. Their network configuration shows the IP address as 169.254.228.109, the subnet mask is 255.255.0.0, and they have not been assigned a default gateway. Which of these is the MOST likely cause of this issue?
- A.** The subnet mask is not correct
 - B.** The Internet provider is experiencing a temporary outage
 - C.** The DHCP server is down
 - D.** The wireless adapter is not working properly

The Answer: C. The DHCP server is down

If a DHCP (Dynamic Host Configuration Protocol) server is not responding, then the local workstation will configure itself with an APIPA (Automatic Private IP Addressing) address. The usable APIPA addresses are in the range between 169.254.1.0 through 169.254.254.255. An APIPA address is a link-local address, so network communication is limited to the local IP subnet.

The incorrect answers:

A. The subnet mask is not correct

The subnet mask has been configured through APIPA, and the mask of 255.255.0.0 is normal for an APIPA configuration. The subnet mask is not the cause of the browsing issues on the workstation.

B. The Internet provider is experiencing a temporary outage

In this example, the issue is related to the APIPA link-local address assigned to the workstation. Although the Internet provider could potentially be experiencing issues, it would not be the most likely cause of the problem.

D. The wireless adapter is not working properly

The wireless adapter has configured itself and assigned a link-local APIPA address, so it appears that the adapter itself is functional.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

A34. A help desk technician needs to use different Windows versions to study for an industry certification exam. The technician currently uses a Windows desktop computer with 4 GB of RAM and a 750 GB free on the hard drive. Which of the following would be the BEST way to perform this task? (Choose TWO)

- A. Install a KVM
- B. Install an additional hard drive
- C. Create a Windows Recovery Environment boot drive
- D. Upgrade the system RAM
- E. Install Windows guest VMs

The Answer: D. Upgrade the system RAM, and
E. Install Windows guest VMs

The easiest way to use multiple operating systems on a single machine is to run them as virtual machines. Although there's plenty of storage space for multiple virtual machines, the 4 GB (Gigabytes) of RAM (Random Access Memory) on the host computer is too small to support multiple Windows operating systems at the same time. Once the memory upgrade is complete, it's a relatively easy process to install the guest virtual machines on the existing hard drive.

The incorrect answers:

A. Install a KVM

A KVM (Keyboard, Video, and Mouse) controller is used to consolidate the keyboard, mouse and video monitor for multiple devices. In this example, all of the operating systems will be running on a single device.

B. Install an additional hard drive

The available hard drive is large enough to support the installation of multiple virtual machines.

C. Create a Windows Recovery Environment boot drive

A Windows Recovery Environment drive is useful for troubleshooting the existing Windows installation, but it won't help with multiple operating systems.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

A35. While configuring a new workstation in the lab, one of the engineers recommends using 255.255.255.0. What part of the configuration is this associated with?

- A. Default gateway
- B. Subnet mask
- C. DNS server
- D. IP address

The Answer: B. Subnet mask

Subnet masks are used by the local device to determine what subnet it's connected to. Subnet masks are a series of binary ones that are used to "mask" the subnet address from the host address. Instead of representing this mask in binary, it's almost always shown in decimal form. Common decimal representations of subnet mask start with 255, such as 255.255.255.0.

The incorrect answers:

A. Default gateway

A default gateway on an internal lab network will most likely be using private IP (Internet Protocol) addressing that starts with 10, 172, or a 192. IP addresses cannot start with an octet of 255. Therefore, a default gateway in this environment would not have an IP address of 255.255.255.0.

C. DNS server

Since an IP address cannot start with the octet of 255, this address would not be associated with a DNS server.

D. IP address

The IP address of a device cannot start with 255. It's most likely that a device in a lab would use an internal IP address that starts with an octet of 10, 172, or 192.



More information:

220-1001, Objective 2.6 - An Overview of IPv4 and IPv6

<https://professormesser.link/1001020601>

A36. Which of the following BEST describes a Bluetooth network?

- A. PAN
- B. WAN
- C. LAN
- D. MAN

The Answer: A. PAN

A PAN (Personal Area Network) is designed for a small area and usually an individual person. Bluetooth devices such as headsets, speakers, and automobile connections are considered PANs.

The incorrect answers:

B. WAN

A WAN (Wide Area Network) usually connects locations over a long geographical distance. A network link between cities, states, or countries would be considered a WAN connection.

C. LAN

The network in your building or home is a LAN (Local Area Network). If you're connected to an Ethernet or 802.11 wireless network, then you're connected to a LAN.

D. MAN

A MAN (Metropolitan Area Network) is a bit bigger than a LAN, but smaller than a WAN. Connecting sites in the same city or metropolitan area would use a MAN link.



More information:

220-1001, Objective 2.7 - Network Types

<https://professormesser.link/1001020702>

A37. Sam, a user in the accounting department, is migrating from Android to iOS. She would like all of her emails, contact lists, and calendar events to be moved to her new phone. Which of the following would be the BEST way to accomplish this task?

- A. Use a Windows-based migration tool
- B. Save the Android phone data as a CSV file
- C. Connect the new phone to the corporate Exchange server
- D. Use a USB-to-Lightning cable

The Answer: C. Connect the new phone to the corporate Exchange server

Microsoft Exchange manages email, calendar events, and contact information in a single database. Using this central database, Exchange can synchronize all of this information to both iOS and Android smartphones.

The incorrect answers:

A. Use a Windows-based migration tool

Since most smartphones can synchronize email, calendar, and events to an existing email platform, a third-party migration tool is unnecessary.

B. Save the Android phone data as a CSV file

Most mobile phones do not provide data in CSV (Comma Separated Value) format. Even if the Android data was available, there's no common way to import that data into an iOS device.

D. Use a USB-to-Lightning cable

Connecting the phones to another device or to each other would not migrate any data between the devices.



More information:

220-1001, Objective 1.7 - Mobile Device Synchronization

<https://professormesser.link/1001010701>

- A38.** The internal Bluetooth adapter of a laptop has failed, and the user would like to get a repair estimate. Which of the following would be the BEST way to determine an accurate price of an exact replacement?
- A.** Research online forums
 - B.** Determine the purchase price of a USB to Bluetooth adapter
 - C.** Disassemble the laptop case and document the process
 - D.** View the Bluetooth information in Network settings

The Answer: C. Disassemble the laptop case and document the process
Although the operating system driver can sometimes provide details about what's inside, they often can hide details about the specific hardware. The only way to know the exact make and model of the Bluetooth adapter is a physical examination. Some laptops are easier to open than others, so it's useful to document the process used to gain access to the Bluetooth hardware.

The incorrect answers:

A. Research online forums

Online forums are useful for troubleshooting technical issues, but they won't provide information on pricing or be able to determine the exact make and model of the Bluetooth adapter.

B. Determine the purchase price of a USB to Bluetooth adapter

In this example, the user would like to replace the existing internal adapter. An external USB to Bluetooth adapter may provide similar functionality, but it would not have the same "invisible" footprint as the internal adapter.

D. View the Bluetooth information in Network settings

The operating system is often quite good at providing hardware information, but the only way to know if it's providing an accurate representation of the installed Bluetooth adapter is to physically view the actual hardware.



More information:

220-1001, Objective 5.5 - Device Disassembly Best Practices

<https://professormesser.link/1001050503>

- A39.** A server administrator has been asked to configure the storage requirements for a new database server. The database owner requires the fastest performance, and redundancy if a single drive fails. The storage array should support 8 TB or larger of available space. Which of the following options would be the BEST choice?
- A. RAID 10 with 5,400 RPM, 8 TB drives
 - B. RAID 5 with 10,000 RPM, 5 TB drives
 - C. RAID 1 with 7,200 RPM, 8 TB drives
 - D. RAID 0 with 15,000 RPM, 5 TB drives

The Answer: B. RAID 5 with 10,000 RPM, 5 TB drives

The question is focused on three requirements; performance, drive space, and redundancy. This option provides the highest number of RPMs (Revolutions Per Minute), the RAID 5 (Redundant Array of Independent Disks) redundancy, and enough storage to support more than 8 TB (terabytes) of drive space.

The incorrect answers:

A. RAID 10 with 5,400 RPM, 8 TB drives

Although RAID 10 would provide the redundancy requirement and a series of 8 TB drives would more than cover the storage requirement. However, the slow throughput of 5,400 RPM drives would not provide the performance requirement.

C. RAID 1 with 7,200 RPM, 8 TB drives

RAID 1 mirroring provides the redundancy required, and 8 TB drives provide plenty of storage space. However, the 7,200 RPM specification is slower than the 10,000 RPMs available in answer B.

D. RAID 0 with 15,000 RPM, 5 TB drives

15,000 RPM drives provide a very fast throughput, and multiple 5 TB drives would provide more than 8 TB of available space. However, RAID 0 striping does not provide any redundancy if a drive was to fail.



More information:

220-1001, Objective 3.4 - Storage Devices

<https://professormesser.link/1001030401>

A40. A user would like to access email from their Windows 10 laptop using a smartphone's Internet connection. Which of these technologies needs to be enabled on the laptop?

- A. LTE
- B. Bluetooth
- C. NFC
- D. IR

The Answer: B. Bluetooth

Bluetooth can be used to tether the laptop to the smartphone, and the smartphone can then be used to allow access to resources on the Internet.

The incorrect answers:

A. LTE

LTE (Long-Term Evolution) may be used by the smartphone for Internet data communication, but the laptop does communicate using LTE.

C. NFC

NFC (Near Field Communication) is a short-distance wireless technology that is commonly used for payment systems or in-person information exchange. NFC is not used for tethering a laptop to a phone.

D. IR

IR (Infrared) is often used to control other IR devices, such as entertainment centers or televisions. IR is not used during the tethering process.



More information:

220-1001, Objective 1.5 - Mobile Device Connections

<https://professormesser.link/1001010501>

- A41.** A user has connected their laptop to an LCD projector, but video isn't displaying through the projector. What laptop key is often combined with the "CRT/LCD" key to control the video output?
- A. Fn
 - B. Alt
 - C. Windows
 - D. Ctrl

The Answer: A. Fn

The laptop function key (Fn) is usually combined with another laptop key to control features such as volume, wireless adapter functionality, and video output. This allows the laptop manufacturers to add additional functionality to the laptop keyboard without adding any physical keys or switches.

The incorrect answers:

B. Alt

The Alt (Alternate) key is a modifier that's commonly used in applications to provide secondary features. The Alt key is not commonly used to control laptop hardware.

C. Windows

The Windows key is used as a shortcut to Windows-specific operating system features. The Windows key is not commonly used to control laptop hardware.

D. Ctrl

The Ctrl (Control) key is very similar in use to the Alt key. Applications commonly use the Ctrl key as a modifier to enable shortcuts or secondary features. The Ctrl key is not commonly used to control laptop hardware.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

A42. A member of the management team is developing a product based on wearable technology. Which of the following would BEST describe this product type?

- A. Virtual reality
- B. e-Reader
- C. Smart watch
- D. Smart phone

The Answer: C. Smart watch

Wearable technologies are devices that can be worn all day as an extension of a phone and body. Common wearable technologies would be smart watches and fitness monitors.

The incorrect answers:

A. Virtual reality

Although it's true that many virtual reality headsets are devices that are worn or placed on the head, they are not part of the device category of wearable technology. Wearable products are designed to be worn all day, and virtual reality headsets don't fit that characteristic.

B. e-Reader

An e-Reader is a hand-held device that is commonly used for reading books or magazines. e-Readers aren't worn on the body, so they don't qualify as a wearable technology.

D. Smart phone

A smart phone is technically not a wearable technology, although it's common for someone to carry their phone around throughout the day. Since the phone is often used while not connected to the body, it would not qualify as a wearable technology.



More information:

220-1001, Objective 1.4 - Mobile Devices

<https://professormesser.link/1001010401>

- A43.** A system administrator is using a maintenance kit on a network-connected laser printer. Which of the following should be the LAST step when performing this maintenance?
- A. Examine the feed rollers
 - B. Wait until the fuser unit cools down and replace it
 - C. Reset the page counter
 - D. Replace the power cord

The Answer: C. Reset the page counter

The page counter is a helpful metric to determine how much the printer is used, which in turn determines when the next maintenance should be scheduled. After performing the current maintenance cycle and verifying the printer's operation, the page counter should be reset so that the next maintenance time-frame can be properly estimated.

The incorrect answers:

A. Examine the feed rollers

Examining or replacing the feed rollers is a normal part of the maintenance process, but it would not often be the last step in the maintenance process.

B. Wait until the fuser unit cools down and replace it

Fusers are commonly replaced during maintenance, but this would not be the last step in the process.

D. Replace the power cord

Replacing the power cord is not commonly part of the maintenance process. The only time the power cord would need replacing is if it has been damaged. Power cords do not generally wear out or need replacement.



More information:

220-1001, Objective 3.11 - Laser Printer Maintenance

<https://professormesser.link/1001031102>

- A44.** An application developer needs to test an application across all of the operating systems used by the company. Each operating system will be tested individually in a lab environment. The company would like to minimize any additional hardware purchases for this project. Which of the following would be the BEST way to test this application?
- A.** Purchase a system that is configured just above the hardware requirements for the highest-end operating system. Create separate VMs for each operating system.
 - B.** Purchase individual test computers that match the hardware requirements for each OS. Install different operating systems on each test computer.
 - C.** Designate existing user workstations to be used as testing systems. Run all application tests during non-working hours.
 - D.** Purchase a system that matches the minimum hardware requirements for the highest-end operating system. Create a system image for each operating system and reimage the computer between tests.

The Answer: **A.** Purchase a system that is configured just above the hardware requirements for the highest-end operating system. Create separate VMs for each operating system.

Creating virtual machines for these tests would be a great way to minimize hardware costs, and the machine used for the testing should be able to properly virtualize the testing OS while the host OS is running. Purchasing a system that is slightly more powerful than the highest-level operating system configuration should cover any technical requirements.

The incorrect answers:

B. Purchase individual test computers that match the hardware requirements for each OS. Install different operating systems on each test computer.

Since one of the project requirements was to minimize the hardware cost, purchasing separate computers for all of these systems would be much more expensive than purchasing a single computer and virtualizing the operating systems.

C. Designate existing user workstations to be used as testing systems. Run all application tests during non-working hours.

This solution would certainly minimize the hardware cost, but the process of using existing user workstations would be difficult to manage. This solution would also require the testing to occur during hours when the application developer would, by definition, not be working.

D. Purchase a system that matches the minimum hardware requirements for the highest-end operating system. Create a system image for each operating system and reimage the computer between tests.

Although this would technically be a valid alternative, it would be time consuming to constantly image and reimage the test system for every operating system. Using virtual machines would allow the application developer to instantly stop and start any operating system at any time.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

A45. Which wireless standard operates in the 5 GHz band and provides over 5 Gbit/sec of throughput?

- A. 802.11n
- B. 802.11g
- C. 802.11ac
- D. 802.11a

The Answer: C. 802.11ac

802.11ac operates in the 5 GHz band and can provide almost 7 gigabits per second of total throughput.

The incorrect answers:

A. 802.11n

Although 802.11n can operate in the 2.4 GHz band and the 5 GHz band, the maximum theoretical throughput of 802.11n is 600 megabits per second.

B. 802.11g

802.11g operates in the 2.4 GHz band exclusively, and can provide a maximum throughput of only 54 megabits per second.

D. 802.11a

802.11a operates in the 5 GHz band, but the total throughput of 802.11a is 54 megabits per second.



More information:

220-1001, Objective 2.4 - Wireless Standards
<https://professormesser.link/1001020401>

A46. A user in the manufacturing department reports that every page printed from the central networked laser printer has a single black line that extends from the top of the page to the very bottom. Which of the following is the MOST likely cause of this issue?

- A. The fuser is damaged
- B. The printer is out of memory
- C. The photosensitive drum is damaged
- D. The toner is low

The Answer: C. The photosensitive drum is damaged

A scratched photosensitive drum would cause a line to appear down the printed page as the toner sticks to the scratched part of the drum. Some printers allow individual drums to be replaced, and others require the entire toner cartridge with drum to be replaced. Once the scratched drum is replaced, the black line will no longer appear on the printer output.

The incorrect answers:

A. The fuser is damaged

The fuser provides the heat and pressure required to permanently affix the toner to the printed page. The fuser would not commonly add additional black lines to the printer output.

B. The printer is out of memory

The laser printer will render an entire page in memory before printing, and running out of memory will cause the output to be truncated or missing. If only a portion of the page is printing, then the printer is most likely out of memory.

D. The toner is low

If the printer output was very faint or difficult to read, then the toner levels may be low. Most printers will provide a message when it's time to replace the toner cartridge.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- A47.** Which mobile device connection is commonly used for making payments at a store checkout?
- A. NFC
 - B. Infrared
 - C. Cellular
 - D. Bluetooth

The Answer: A. NFC

NFC (Near Field Communication) is designed to transfer small amounts of data wirelessly over a limited area. It's common to use a smart phone or smart watch with a credit card terminal to pay for goods or services.

The incorrect answers:

B. Infrared

Infrared, or IR, is included on many smart phones, tablets, and smart watches, but it's used mostly for controlling other infrared devices such as television and audio components. Infrared would not be used during the purchase process.

C. Cellular

Cellular networks are used for voice and data communication, but those cellular networks are not part of the in-store purchase process.

D. Bluetooth

Although Bluetooth supports many different features, it's not used during the checkout process in a store.



More information:

220-1001, Objective 1.5 - Mobile Devices Connections

<https://professormesser.link/1001010501>

A48. A company is planning to use a cloud-based file storage service to store, share, and synchronize files across all company devices. Which of the following would be the MOST important resource requirement for this service?

- A. Local storage capacity
- B. Internet bandwidth
- C. CPU utilization
- D. System memory

The Answer: B. Internet bandwidth

Cloud-based services work almost exclusively over the network, and file synchronization services will require additional bandwidth to process constant updates and changes over the network.

The incorrect answers:

A. Local storage capacity

Local storage is certainly an important consideration, but cloud-based file storage and synchronization will require network bandwidth as the primary resource.

C. CPU utilization

The CPU processes required to support a cloud-based file storage or file synchronization service are relatively small on the local devices.

D. System memory

The memory required to support a cloud-based file storage application is relatively small compared to most applications.



More information:

220-1001, Objective 4.1 - Cloud Services

<https://professormesser.link/1001040102>

A49. When printing a document on a laser printer, a user finds that all of the text on the page smears when touched. What is the MOST likely cause of this issue?

- A. Fuser is damaged
- B. Toner cartridge is low
- C. Photosensitive drum has been scratched
- D. Incorrect printer driver is installed
- E. Printer cleaning process is not working

The Answer: A. Fuser is damaged

The fuser permanently melts the toner to the paper using heat and pressure. If the fuser is not working, the toner will easily smear when touched.

The incorrect answers:

B. Toner cartridge is low

A low toner cartridge will cause the output to appear faded and difficult to read. A low toner cartridge will not cause the output to smear when touched.

C. Photosensitive drum has been scratched

A scratched drum will cause lines and other stray marks to appear on the printed page. The toner sticks to the scratches and is transferred to the final page output.

D. Incorrect printer driver is installed

The printer driver will format the output into a page description language that the printer can understand. An incorrect driver would not cause the printer output to smear.

E. Printer cleaning process is not working

If the cleaning process is not working, then a "ghost" of previous passes around the drum will appear on different parts of the printed page. It's common that poor cleaning will cause multiple faded versions of a page to appear in the printed output. A non-working cleaning process would not cause the printer output to smear, however.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

A50. A manager's computer is able to connect to Internet sites while in conference rooms or in the building courtyard. When the laptop is brought back to the manager's desk and placed into the docking station, the Internet access is unavailable but all other features are working. Which of the following should be the **FIRST** troubleshooting task for this issue?

- A. Replace the docking station power supply
- B. Upgrade the laptop BIOS
- C. Replace the docking station
- D. Check the docking station network cable

The Answer: D. Check the docking station network cable

The Internet access on the laptop appears to be working properly on the wireless network, but the docking station connection would use a wired Ethernet connection. If everything else is working properly, then the issue would most likely be associated with the Ethernet interface in the docking station.

The incorrect answers:

A. Replace the docking station power supply

If other docking station features were not working, then there could be an issue with the power connection on the docking station. In this situation, all of the other features appeared to be working properly when connected to the docking station.

B. Upgrade the laptop BIOS

A BIOS upgrade is a significant change, and it's rarely the first step in the troubleshooting process.

C. Replace the docking station

Although it's certainly possible that the docking station could be faulty, there are no obvious issues with other features. Before replacing the entire docking station, it would be useful to check the individual components associated with the problem.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

A51. A company is developing an internal application that will run on smartphones and tablets. What should the application use to simplify the authentication process?

- A. Strong passwords
- B. SSO
- C. VPN
- D. SSL

The Answer: B. SSO

SSO (Single Sign-on) is a method of centralizing authentication to a common database. This allows the users to authenticate once with a single username and password, and those credentials will be used across all services.

The incorrect answers:

A. Strong passwords

Although a strong password is always a best-practice, including a strong password policy for an application does not simplify the authentication process.

C. VPN

A VPN (Virtual Private Network) is a method of encrypting data between two devices, and it's commonly used to create an encrypted tunnel over an untrusted network. VPNs don't simplify the authentication process.

D. SSL

SSL (Secure Sockets Layer) is a common encryption method used to protect data sent and received from a web browser. SSL doesn't simplify the authentication process.



More information:

220-1001, Objective 1.7 - Mobile Device Synchronization

<https://professormesser.link/1001010701>

A52. One of the software developers in your company would like to install six virtual machines on their desktop for application testing. Each VM would run a different operating system, but only one VM would be running at any particular time. Which of the following components would be the MOST important for this configuration? (Choose TWO)

- A. Video adapter RAM
- B. Hard drive space
- C. Gigabit NIC
- D. System RAM
- E. Enhanced audio

The Answers: B. Hard drive space and D. System RAM

Six virtual machines will require enough hard drive space to install all six operating systems, so it will be important to have enough free storage space. Running more than one operating system at a time on a computer also requires additional memory, so having enough system RAM is also an important consideration.

The incorrect answers:

A. Video adapter RAM

The question didn't specify any unique requirement for video, so a requirement for video adapter RAM would not be the most important in this configuration.

C. Gigabit NIC

Although gigabit network connections are relatively standard, nothing in the requirements specified a need for high-speed network connectivity.

E. Enhanced audio

The configuration for this test system did not specify any enhanced audio requirement.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- A53.** What is the minimum category of unshielded copper cable that would run a 10 gigabit per second Ethernet link with a fifteen meter distance?
- A. Category 5
 - B. Category 6
 - C. Category 5e
 - D. Category 6A

The Answer: B. Category 6

The physical characteristics of networking cables are separated into categories. A category 6 cable can support a ten gigabit per second 10GBASE-T network to a distance of thirty-seven to fifty-five meters.

The incorrect answers:

A. Category 5

Category 5 copper cables can support a one gigabit per second 1000BASE-T network up to one hundred meters. Ten gigabit per second speeds are not support over category 5 cable.

C. Category 5e

Category 5e (enhanced) is a minor update to category 5, and the Ethernet standards supported for a category 5e cable are identical to those of a category 5 cable. Therefore, category 5e copper cables can support a one gigabit per second 1000BASE-T network up to one hundred meters in length.

D. Category 6A

Category 6A (augmented) cables can support ten gigabit per second 10GBASE-T connections to a distance of one hundred meters.



More information:

220-1001, Objective 3.1 - Copper Network Cables

<https://professormesser.link/1001030101>

A54. An engineer has manually configured IP addresses for a small office that uses a cable modem for Internet connectivity. However, none of the devices configured with a manual IP address are able to browse Internet websites. All devices are connected to the cable modem with twisted-pair Ethernet cables. This is the configuration of one device:

IP address: 192.168.1.7

Subnet mask: 255.255.255.0

Default gateway: 192.168.1.1

DNS: 192.168.1.7

The engineer can successfully ping the local IP address and the default gateway address. Which of the following should be the NEXT troubleshooting step?

- A. Check for duplicate IP addresses
- B. Replace the Ethernet cable
- C. Check the DNS configuration
- D. Replace the cable modem

The Answer: C. Check the DNS configuration

One of the most noticeable of the IP (Internet Protocol) configuration settings was that the DNS (Domain Name Service) server IP address was configured to be the same as the local device. Since DNS servers are commonly separate (and often remote) devices, it would be unusual to see a DNS configured with the same IP address of the local device. The next step should be to confirm the DNS settings with the local network administrator.

The incorrect answers:

A. Check for duplicate IP addresses

No mention was made of an duplicate IP address warning, and some of the ping tests worked properly to devices on the local subnet.

B. Replace the Ethernet cable

Since the ping tests worked locally, we can conclude that the Ethernet cable is most likely not related to this issue.

D. Replace the cable modem

The cable modem is most likely the default gateway, and a ping of that IP address worked properly. More tests would need to be performed before replacing any hardware.



More information:

220-1001, Objective 2.6 - Assigning IP addresses

<https://professormesser.link/1001020602>

A55. A user in a SOHO office needs to connect a laptop to the DSL router. Which of the following cables should be used for this connection?

- A.** Ethernet
- B.** Lightning
- C.** Coaxial
- D.** USB-C

The Answer: A. Ethernet

A SOHO (Small Office Home Office) with a DSL (Digital Subscriber Link) modem will commonly connect to the modem using an Ethernet cable connection.

The incorrect answers:

B. Lightning

Apple Lightning cables are used to connect mobile devices to power or external peripherals. Lightning connections are not used for DSL links.

C. Coaxial

Coaxial cable is commonly used for the cable modem connection to the Internet service provider.

D. USB-C

USB-C is used for connectivity to peripherals or other devices, but it is not commonly used for network links. The large majority of wired network connections inside of a network will use Ethernet cables.



More information:

220-1001, Objective 3.1 - Copper Network Cables

<https://professormesser.link/1001030101>

- A56.** A user in the accounting department has turned on their computer and received the message “Date and Time not set.” Which of the following would be the MOST likely reason for this message?
- A. The motherboard battery has discharged
 - B. Windows update has rebooted the computer
 - C. Daylight Saving Time occurred during the weekend
 - D. The BIOS was just upgraded

The Answer: A. The motherboard battery has discharged

The battery on a motherboard is used to maintain the date and time configuration when the computer is not connected to a power source. If the battery has discharged, the computer will not be able to maintain the proper time and an error message will appear during startup.

The incorrect answers:

B. Windows update has rebooted the computer

Rebooting the computer will not cause the date and time to be reset.

C. Daylight Saving Time occurred during the weekend

Daylight Saving Time does not cause the computer's date and time to be reset, and any changes to the clock in Windows will be reflected in the BIOS.

D. The BIOS was just upgraded

A BIOS upgrade does not commonly reset the date and time on the BIOS clock.



More information:

220-1001, Objective 3.5 - BIOS

<https://professormesser.link/1001030504>

A57. A technician has just replaced a broken touch screen on a laptop used for trade shows. However, the touch functionality is no longer working on the display. Which of the following would be the MOST likely reason for this issue? (Select TWO)

- A. The digitizer is not calibrated
- B. The replacement screen is not a touch screen
- C. The BIOS needs to be updated
- D. The display resolution is incorrect
- E. The digitizer is not properly connected
- F. The wireless network is conflicting with the digitizer

The Answers: B. The replacement screen is not a touch screen, and
E. The digitizer is not properly connected

When replacing a touch screen display, it's important to make sure the replacement is also a touch screen unit. The two look almost identical, so it would be a common mistake to accidentally install the wrong hardware.

After installation, a separate connection is often required to enable the digitizer. If the display panel is the correct hardware, then it's important to check that all of the cables are connected, especially the cables specific to the digitizer features.

The incorrect answers:

A. The digitizer is not calibrated

An uncalibrated digitizer would work, although the input locations would not be accurate. Most modern digitizers do not require the user to perform any calibration routines.

C. The BIOS needs to be updated

Since this is a replacement unit, we can assume that any BIOS (Basic Input Output System) settings associated with the digitizer are still valid. A BIOS upgrade would not be required to enable digitizer functionality.

D. The display resolution is incorrect

An incorrect display resolution may show the screen with very large or very small text and icons, but it wouldn't have any impact on the functionality of the digitizer. Most touch screen displays will operate at any valid display resolution.

F. The wireless network is conflicting with the digitizer

Wireless network connections would not commonly conflict with other hardware in a device, including the touch screen display.



More information:

220-1001, Objective 5.4 - Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

A58. A system administrator created a series of VMs that will use a portion of a server's available physical memory. Which of the following describes this cloud computing characteristic?

- A. Resource pooling
- B. Rapid elasticity
- C. Metered
- D. On-demand

The Answer: A. Resource pooling

Resource pooling places all of the computing resources in one place, and then distributes from the pool when needed. A VM (Virtual Machine) manager using a portion of available physical memory is taking advantage of resource pooling.

The incorrect answers:

B. Rapid elasticity

Rapid elasticity is the characteristic of scaling up or down cloud resources with demand. More resources will be made available during busy times, and those resources will be seamlessly removed when the demand is low.

C. Metered

Metered resources are measured based on usage. As more information is uploaded, stored, and downloaded, the costs are tracked and billed accordingly.

D. On-demand

Cloud computing allows the users to create or remove resources at any time, or on-demand. This flexibility allows organizations to quickly react to changes, deploy updates, and remove excess resources.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

A59. A group of wireless laptops in a conference room are reporting intermittent connectivity issues. The wired computers in the room are not experiencing any network problems. A check of the laptops shows that the IP addresses and configurations appear to be correct. Which of the following would be the best NEXT troubleshooting step?

- A. Verify the wireless signal strength
- B. Check the ARP table on the default gateway
- C. Confirm the operation of the DHCP server
- D. Perform a wire map on the network drops

The Answer: A. Verify the wireless signal strength

Since the wired devices are working properly, the troubleshooting process should focus on the wireless network. The connectivity is also intermittent, which means that the network is operating normally during certain periods. This would move the focus from the network configuration to an availability issue.

The incorrect answers:

B. Check the ARP table on the default gateway

Since the wired devices are working normally and the network is intermittently working, the overall configuration of the network would not be the first place to start the troubleshooting process.

C. Confirm the operation of the DHCP server

An inoperable DHCP (Dynamic Host Configuration Protocol) server would cause the local devices to automatically configure a link-local IP address. Since there are no reports beyond general connectivity issues and DHCP server outages are relatively unusual, checking on the DHCP server would not be the next step in the troubleshooting process.

D. Perform a wire map on the network drops

The issue reported in this scenario is relating to the wireless network only. The wired devices are not experiencing any issues with connectivity, so obtaining a wire map would not be the next troubleshooting step.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

A60. A server administrator has been asked to troubleshoot a system that has been slowing down over time. While examining the computer, the administrator can hear a series of clicks from the inside of the case. Which of the following should be the **FIRST** step to address this issue?

- A. Replace the motherboard
- B. Power the system off and back on
- C. Replace the hard drive
- D. Perform a full backup of the server
- E. Replace the power supply

The Answer: D. Perform a full backup of the server

A clicking noise indicates some type of hardware issue with the computer, so the first step would be to confirm that a recent backup is available for all of the data on this system. If the computer fails completely, at least the data will be secure.

The incorrect answers:

A. Replace the motherboard

Motherboards don't tend to have any moving parts, so a clicking noise would probably not be related to the motherboard. There's also not enough information in this question to definitively identify the source of the noise, so replacing hardware would not commonly be the first step.

B. Power the system off and back on

Although software can often be corrected with a reset, hardware isn't commonly fixed with a power cycle. Before making any changes, it would be useful to confirm a good back exists and perform more investigation regarding the noise.

C. Replace the hard drive

If the sound was related to a problem with the hard drive, it would be even more important to have a good backup of the data.

E. Replace the power supply

There's no evidence that the power supply is faulty, but it would be useful to investigate the source of the noise after backing up the data.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

A61. When pressing the power button on a desktop computer, the power indicator lights up but the computer does not display any message on the screen. The voltage at the wall outlet has been checked with a multimeter and it appears to be normal. The motherboard power connector voltage was checked, and the 12 volt pin was showing 6 volts. What is the MOST likely cause of this issue?

- A. The components that use 12 volt power are faulty
- B. The power supply is faulty
- C. The wall outlet voltage does not match the power supply
- D. The motherboard is faulty

The Answer: B. The power supply is faulty

If the 12 volt line from the power supply to the motherboard is showing 6 volts, it's likely a problem with the power supply itself. A power supply replacement should be the next troubleshooting step for this system.

The incorrect answers:

A. The components that use 12 volt power are faulty

Even if the components are faulty, the power supply should still be providing 12 volts for those devices.

C. The wall outlet voltage does not match the power supply

Many power supplies can automatically switch to the correct input voltage from the wall outlet. A mismatch would result in a non-working system or damage to the computer's components.

D. The motherboard is faulty

A bad motherboard would not prevent the power supply from operating at the correct voltage.



More information:

220-1001, Objective 3.7 - Computer Power

<https://professormesser.link/1001030701>

A62. A manager in the marketing department is printing many copies of a twenty page document. The manager would like to print all twenty pages of the document before the next copy begins printing. What setting should the manager configure in the output settings?

- A. Duplex
- B. Collate
- C. Quality
- D. Orientation

The Answer: B. Collate

The printing of multiple copies in their proper order is called collating the output. If the output was not collated, all of the page one copies would print, then all of the page 2, etc.

The incorrect answers:

A. Duplex

Duplex refers to printing on both sides of the page. Many printers will have an option for duplexing that will print on both sides without manually flipping the pages over.

C. Quality

The quality settings on a printer will change the resolution, color settings, or grayscale options. The quality settings will not change the order of the pages during the output process.

D. Orientation

The orientation of the paper refers to the portrait or landscape setting. Changing the orientation will not change the order of the pages during the printing process.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

- A63.** A remote user is visiting their corporate office. They are trying to connect their laptop to the office wireless network, but the network name does not appear in the list of available wireless networks. Which of the following would be the most likely reason for this issue?
- A. There is interference with the wireless signal
 - B. The laptop has been assigned an APIPA address
 - C. The user does not have permission to use the wireless network
 - D. SSID broadcasts have been disabled

The Answer: D. SSID broadcasts have been disabled

The name of the wireless network, or SSID (Service Set Identifier) is normally broadcast to all nearby devices. If the SSID broadcasts are administratively disabled, the network name will not appear in the drop-down list of available wireless networks.

The incorrect answers:

A. There is interference with the wireless signal

The wireless network name is broadcast many times a second, so spurious interference would still allow some SSID advertisements to be seen by remote devices.

B. The laptop has been assigned an APIPA address

APIPA (Automatic Private IP Addressing) is an automated method of assigning IP addresses when a DHCP server is not available. An APIPA address would not limit or filter SSID broadcasts from wireless access points.

C. The user does not have permission to use the wireless network

The wireless authentication process occurs after a device has attempted to connect to the wireless network. An authentication issue would not cause the wireless network name to be filtered prior to connecting.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

A64. A manager is able to receive email messages on their tablet, but they're having problems configuring the tablet to send email messages. Which of the following should be the FIRST troubleshooting step?

- A. Check the SMTP settings
- B. Check the IP address configuration
- C. Send a test message using web-based email
- D. Check the IMAP settings

The Answer: A. Check the SMTP settings

If you're sending an email message from an email client, you're commonly using SMTP (Simple Mail Transfer Protocol). There are three SMTP configuration settings that are important; the SMTP server name or IP address, the SMTP username, and the SMTP password.

The incorrect answers:

B. Check the IP address configuration

If there were problems with the IP configuration, the manager would not be able to receive any email messages. In this question, the issue does not appear to be related to the IP address configuration.

C. Send a test message using web-based email

Sending an email message over web-based email would effectively bypass the local email client and would not help troubleshoot the local issues.

D. Check the IMAP settings

IMAP (Internet Message Access Protocol) is used for receiving email and not for sending email. In this example, the manager was able to receive messages, so the IMAP settings would most likely be working properly.



More information:

220-1001, Objective 1.6

Configuring Email on Mobile Devices

<https://professormesser.link/1001010602>

- A65.** A user is reporting that a shared laser printer in the marketing department is not printing from one particular application. The front panel of the printer shows that the printer is online and ready to receive print jobs. Other users in the department are able to successfully print to the printer. Which of the following would be the BEST next troubleshooting step?
- A. Power cycle the printer
 - B. Restart the print spooler
 - C. Perform a test print from the printer console
 - D. Verify the network printer name in the application

The Answer: D. Verify the network printer name in the application
We know that the printer is working normally because other people are able to print successfully. This also means that the spooling process is working and that the print server is successfully queuing the print jobs. Given the other options, it's most likely that the user is directing the print job to a different printer.

The incorrect answers:

A. Power cycle the printer

We know that the printer is working for other users, so power cycling the printer would not resolve this particular issue.

B. Restart the print spooler

Other users are printing to the network printer, so we know that the print spooler is working properly. Restarting the spooling would not resolve this issue.

C. Perform a test print from the printer console

A test print from the printer console would verify that the printer itself is working properly, but we already know this because of the print jobs sent by other users on the network.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- A66.** A network administrator is connecting four company locations that reside in different countries. Which of the following would BEST describe this configuration?
- A. LAN
 - B. PAN
 - C. MAN
 - D. WAN

The Answer: D. WAN

A WAN (Wide Area Network) connects LANs across a long geographical distance. Once the link extends past the local city area, the connection would be considered a WAN link.

The incorrect answers:

A. LAN

LANs (Local Area Networks) are located in the same building or group of buildings that are located nearby. Ethernet and 802.11 wireless networks are generally considered to be LAN connections.

B. PAN

A private network designed for an individual is a PAN (Personal Area Network). Bluetooth, infrared, and near field communication links are categorized as PAN connections.

C. MAN

Sometimes, a local network provider can link together sites in the same city area. These connections would be MANs (Metropolitan Area Networks).



More information:

220-1001, Objective 2.7 - Network Types

<https://professormesser.link/1001020702>

A67. A new SOHO remote site includes the installation of IoT lights, thermostats, and cameras. Which of the following would be the BEST way to protect the rest of the network against IoT hacking?

- A. Use WPA2 encryption
- B. Configure SSID suppression on the wireless network
- C. Connect the IoT devices to a DMZ
- D. Configure static IP addressing

The Answer: C. Connect the IoT devices to a DMZ

One of the concerns around IoT (Internet of Things) is that a single exploit of an IoT device can potentially put the entire network at risk. To avoid this issue, it's useful to put IoT devices into their own protected network, such as a DMZ (Demilitarized Zone). This means that if an IoT device was exploited, the attacker would not have any access to the more important devices and services on the rest of the network.

The incorrect answers:

A. Use WPA2 encryption

If the IoT devices are on the same network as everything else, then encryption isn't going to help much when the IoT device is exploited. Once the attacker is in control of the IoT device, they'll be on the same encrypted network as internal servers, storage arrays, and any other important device.

B. Configure SSID suppression on the wireless network

SSID (Service Set Identifier) suppression will prevent other devices from showing the wireless network on the list of available networks, but it won't provide any additional security if an IoT device is hacked.

D. Configure static IP addressing

Static IP (Internet Protocol) addressing is sometimes used when devices are required to maintain a particular IP address, but it won't add any additional security if the IoT devices are under the control of an attacker.



More information:

220-1001, Objective 2.3 - Installing a SOHO Network

<https://professormesser.link/1001020301>

A68. A system administrator has configured a VM for dual processors, 16 GB of RAM, and 120 GB of disk space. Which of the following is required to start this VM?

- A. Shared network address
- B. Hypervisor
- C. Virtual switch
- D. Video display

The Answer: B. Hypervisor

A hypervisor, or virtual machine manager, is the software that manages the virtual platform and guest operating systems.

The incorrect answers:

A. Shared network address

There are many options for a virtual machine, including shared, bridged, and private network addresses. A shared network address is not required to start a virtual machine.

C. Virtual switch

Like physical switches, virtual switches can be used to provide connectivity and segmentation for virtual machines. A virtual switch is not a requirement to start or use a virtual machine

D. Video display

Many servers operate without a video display, mouse, or keyboard. These systems are "headless," and a video display is not required to start a virtual machine.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

A69. A site manager has found that her smartphone has a short battery life when used at work, and the battery life is normal when working from home. The work location has limited mobile service reception, but most office services are provided over the local 802.11 Wi-Fi network. The site manager does not enable Bluetooth on her smartphone. Which of the following would be the BEST way to extend the battery life of her mobile device?

- A. Disable 802.11 Wi-Fi
- B. Disable the cellular radio at work
- C. Replace the battery
- D. Enable Bluetooth on the mobile device

The Answer: B. Disable the cellular radio at work

When a mobile provider's network isn't available, a phone will constantly try to reconnect to a cellular network. This reconnection process constantly uses the radio, and subsequently more of the battery is used in the process. To conserve battery life, it would be useful to disable the cellular network connection when outside of a coverage area.

The incorrect answers:

A. Disable 802.11 Wi-Fi

The Wi-Fi network is used at work for office services, so disabling Wi-Fi is not a good option. Since Wi-Fi does not require a constant connection, it's unlikely that the battery usage is associated with the Wi-Fi radio.

C. Replace the battery

It's possible that the battery in the mobile device could need replacing, but the battery problem doesn't appear to happen while at home. If the battery was the primary issue, the battery would work just as poorly at home as in the office.

D. Enable Bluetooth on the mobile device

Enabling a feature like the Bluetooth radio would only serve to increase battery usage. If the battery is the biggest concern and no Bluetooth features are in use, it's a better idea to keep Bluetooth disabled.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

A70. A desktop computer has just abruptly shut off, and pressing the power button doesn't restart the system. There are no fans spinning, no lights are on, and no messages appear on the display. Which of these would be the MOST likely cause of this issue?

- A. The BIOS is configured with a startup password
- B. The LCD display backlight has failed
- C. The power supply is faulty
- D. The master boot record is corrupted
- E. The boot sector is missing

The Answer: C. The power supply is faulty

A faulty power supply could cause a loss of power across all computer systems, and the lack of fans, lights, and output on the display would be the most likely cause given the available options.

The incorrect answers:

A. The BIOS is configured with a startup password

A startup password would not cause the system to power down, and the password prompt would be presented if the computer was powering on.

B. The LCD display backlight has failed

A failure of the LCD backlight would make it appear that the monitor screen is not working, but the fans and lights would still be working normally.

D. The master boot record is corrupted

A corrupted master boot record may prevent a system from booting, but the fans, lights, and screen output would still be working properly.

E. The boot sector is missing

A missing boot sector would not prevent the fans and lights from working properly. The screen would commonly show an error explaining that an operating system was not able to properly start.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

A71. What kind of device is commonly used to filter traffic based on a predefined set of rules?

- A. PoE switch
- B. Repeater
- C. DSL modem
- D. Firewall

The Answer: D. Firewall

A firewall is designed to evaluate inbound traffic, compare that traffic to predefined security policies, and then allow or block that traffic from passing through the firewall. Firewalls are common security appliances between an organization's internal network and the Internet.

The incorrect answers:

A. PoE Switch

PoE (Power over Ethernet) switches are used to provide power to Ethernet-connected devices. This allows devices such as access points, cameras, and VoIP phones to connect with a single Ethernet link for both data connectivity and device power.

B. Repeater

Repeaters are relatively simple devices. Repeaters receive a signal, regenerate that signal, and then resend that signal out another network connection. Repeaters do not make any forwarding decisions and they don't filter based on a set of rules.

C. DSL modem

DSL (Digital Subscriber Line) networks is a common Internet connection technology provided over the same twisted pair copper used by analog telephone services. A DSL modem allows the end-user to connect their existing network to the DSL network, but the DSL modem does not filter traffic based on a set of access rules.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

A72. Which of these connection types use coax to provide Internet data, voice, and video over the same wire?

- A. DSL
- B. Cable
- C. ISDN
- D. Dialup

The Answer: B. Cable

Cable television brought cable into everyone's home, and now they include voice and Internet services on the same coax cable.

The incorrect answers:

A. DSL

DSL (Digital Subscriber Line) uses a pair of copper wires to provide Internet access over the same lines as a traditional telephone service.

C. ISDN

ISDN (Integrated Services Digital Network) was the precursor to DSL, and also used a pair of copper wires to provide high-speed dialup Internet service.

D. Dialup

Dialup lines traditionally used the same network as the telephone service, and you would only need a modem on each end of the phone line to provide digital communication.



More information:

220-1001, Objective 2.7 - Internet Connection Types

<https://professormesser.link/1001020701>

A73. A desktop administrator has been asked to troubleshoot a laptop computer that beeps during the power on process while the laptop screen remains dark. Which of the following would be the best NEXT troubleshooting step?

- A. Implement a solution
- B. Document findings
- C. Establish a theory
- D. Evaluate results

The Answer: C. Establish a theory

Once an issue has been identified, it's important to consider all of the possible reasons the problem may have occurred. It's useful to list all possible causes, even those that might not be obvious.

The incorrect answers:

A. Implement a solution

The implementation of a solution would occur after possible theories have been determined and tested. Once a plan of action is created, the solution can be implemented.

B. Document findings

Once the problem has been resolved, the last step of the troubleshooting process is to document the issue, the resolution, and any other important steps during the process.

D. Evaluate results

When testing theories for possible fixes, the results of each test should be evaluated to determine if the fix was successful.



More information:

220-1001, Objective 5.1 - How to Troubleshoot

<https://professormesser.link/1001050101>

A74. A manager is complaining of short battery life on their laptop when traveling. Which of the following should be disabled to provide the BEST battery conservation?

- A. Internal speakers
- B. Webcam
- C. Smart card interface
- D. Bluetooth
- E. Touchpad

The Answer: D. Bluetooth

Bluetooth, and any radio-based communication, constantly uses some of the power, and those systems can quickly deplete the battery. If you're not going to be using wireless devices, then it's useful to place the device in airplane mode or disable Bluetooth, 802.11, and cellular radios.

The incorrect answers:

A. Internal speakers

Unless the speakers are currently in use, there's little to no battery used to keep the speakers enabled. Even when the speakers are used, they don't tend to deplete the battery faster than wireless network radios.

B. Webcam

A webcam may be used intermittently when traveling, but even then there's relatively little battery use when compared to wireless networking.

C. Smart card interface

A smart card interface in a laptop allows a smart card to be used as an authentication factor. A smart card interface does not constantly use battery power, and it certainly wouldn't use more than Bluetooth or other wireless network communication methods.

E. Touchpad

A touchpad uses very little power, and it's almost required for use with laptops when traveling.



More information:

220-1001, Objective 1.6 - Mobile Device Connectivity

<https://professormesser.link/1001010601>

A75. A company is deploying cloud-hosted virtual desktops for training room classes. The VMs have already been configured in the cloud. Which of the following is required to access these VMs using thin clients in the training room?

- A. High-end video cards
- B. Separate Internet connection
- C. Mouse, keyboard, and monitor
- D. Category 6A cabling

The Answer: C. Mouse, keyboard, and monitor

Cloud-hosted virtual desktops are a type of VDI (Virtual Desktop Infrastructure). Access to the desktop is provided over a remote access-style client, and access can be provided from almost any operating system using a low-bandwidth network connection. The client device is usually a thin-client that has a minimum set of resources, a mouse, keyboard, and a monitor.

The incorrect answers:

A. High-end video cards

Cloud-based virtual desktops are being processed on servers in the cloud, so the local thin clients do not require any advanced graphics capabilities.

B. Separate Internet connection

The communication to the virtual desktops is sending video, keyboard, and mouse updates, and all of this can operate with a minimum of network bandwidth. A separate or dedicated Internet connection is not required.

D. Category 6A cabling

Category 6A cabling would commonly be associated with very high-speed 10 gigabit per second Ethernet networking. A thin client communicating to a cloud-hosted virtual desktop can operate at relatively low bandwidths.



More information:

220-1001, Objective 4.1 - Cloud Services

<https://professormesser.link/1001040102>

A76. A technician has connected a laptop to an LCD display. The LCD display is presenting the correct information, but all of the content appears to be compressed vertically. Which of the following is the MOST likely reason for this issue?

- A. The LCD display is faulty
- B. The laptop display adapter is incompatible with the LCD display
- C. The laptop resolution is incorrect
- D. The LCD display cable is faulty

The Answer: C. The laptop resolution is incorrect

An LCD (Liquid Crystal Display) has an optimal resolution that is based on the physical dimensions of the display. If the resolution settings in the operating system don't match the physical display, then the information on the screen may appear blurry or skewed. Configuring the correct resolution in the operating system will commonly resolve this issue.

The incorrect answers:

A. The LCD display is faulty

If the LCD display is showing information (however skewed), then it may not be a hardware failure. Adjusting the operating system's video settings to match the LCD display hardware will often resolve any odd visual display quirks.

B. The laptop display adapter is incompatible with the LCD display

Most display adapters will include a video output format that would be compatible with most LCD displays. It would be unusual to find an LCD display that would not operate with a specific video adapter.

D. The LCD display cable is faulty

A bad cable will commonly show flashes of information or intermittent periods of a black screen. A bad cable would not commonly display information in a fuzzy or skewed format.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

A77. An engineering firm is upgrading their storage array to include additional drive space for documents and designs. The primary goal is to provide high performance and uptime, even if two drives were to fail. Which of the following would be the BEST choice for this firm?

- A. RAID 1
- B. RAID 5
- C. RAID 0
- D. RAID 10

The Answer: D. RAID 10

RAID (Redundant Array of Independent Disks) is a method of combining storage drives together to add speed and/or redundancy. A RAID 10 array is a nested RAID configuration that creates a mirrored set of RAID 0 drives. As long as only one drive fails in each RAID 0 mirror, the redundancy will remain valid and the user's data will continue to be available.

The incorrect answers:

A. RAID 1

RAID 1 is also called mirroring, because file blocks are duplicated between two or more physical drives. Losing a single drive in a RAID 1 array will still allow access to the data on the other mirrored drive, but losing two drives would cause the data to be inaccessible.

B. RAID 5

RAID 5 is striping with parity, where file blocks are striped across multiple storage drives and one storage drive maintains parity data. Data would still be available after a single drive failure in RAID 5, but two failed drives would cause data loss.

C. RAID 0

RAID 0 is also called striping, where file blocks are split across multiple physical drives. However, RAID 0 does not include any redundancy features. A single drive failure in RAID 0 results in data loss.



More information:

220-1001, Objective 3.4 - RAID

<https://professormesser.link/1001030402>

A78. A network administrator is installing a wireless access point in a new conference room. Which of these settings would provide the BEST security for this installation?

- A. WPA2 encryption
- B. SSID suppression
- C. Static IP addressing
- D. UPnP
- E. MAC filtering

The Answer: A. WPA2 encryption

Configuring WPA2 (Wi-Fi Protected Access II) encryption would prevent unauthorized users from accessing the wireless network and would encrypt the data sent over the wireless network.

The incorrect answers:

B. SSID suppression

Preventing the SSID (Service Set Identifier) from appearing in lists of available wireless networks would not provide any significant security feature. If someone knows the name of the network, they would still be able to connect.

C. Static IP addressing

Static IP (Internet Protocol) addressing is useful for unique environments that require specific IP address assignments, but assigning IP addresses statically doesn't add any significant security to the network.

D. UPnP

UPnP (Universal Plug and Play) allows network devices to automatically locate and configure other network devices. Generally speaking, the automatic configuration feature of UPnP makes the network LESS secure.

E. MAC filtering

Filtering traffic by MAC (Media Access Control) address can be easily circumvented with a packet capture application, so MAC filtering would not be considered a security feature.



More information:

220-1001, Objective 2.3 - Configuring a SOHO Network

<https://professormesser.link/1001020302>

A79. A university library needs to purchase a new printer for an open study area. The primary requirement of this printer is to be as quiet as possible. Which of these printer types would be the best fit for this requirement?

- A. Dot-matrix
- B. Inkjet
- C. Laser
- D. Thermal

The Answer: D. Thermal

Of the available options, thermal printers are the quietest. The only moving parts in a thermal printer are the motors that push the paper through the printer, and those motors are small and run almost silently.

The incorrect answers:

A. Dot-matrix

Dot matrix printers are probably the loudest option in this list. The metal pins in a dot matrix print head are impacting the page, and that printing process makes a significant amount of noise.

B. Inkjet

An inkjet printer's printing process is a bit quieter than a dot matrix printer, but it's not as quiet as thermal printing. The sound of the carriage moving the print heads across the page and the printing process itself would not provide the quietest printing option given the available options.

C. Laser

A laser printer uses many moving parts, high voltages, and a large motor to print a single page. This process makes a bit of noise, so it wouldn't fit the requirements for the library.



More information:

220-1001, Objective 3.11 - Thermal Printers

<https://professormesser.link/1001031105>

A80. Which of the following would be the BEST choice for reading textbooks in bright sunlight?

- A. Tablet
- B. Augmented reality
- C. Wearable technology
- D. e-Reader

The Answer: D. e-Reader

e-Readers are standalone book and magazine reading devices that are often designed with electronic paper or electronic ink technology. The electronic ink screens on the e-Readers are specifically designed for reading text-based content in bright sunlight.

The incorrect answers:

A. Tablet

Although tablets are quite useful for reading books and magazines, the LCD screens in most tablets are not very visible when working in direct sunlight.

B. Augmented reality

Augmented reality works with phones or glasses to overlay a virtual augmentation over the physical world. Augmented reality can be used to add games to the physical world, annotate travel information, or overlay healthcare information, but it doesn't make an ideal book reader.

C. Wearable technology

Wearable technologies are usually worn all day and are relatively small devices. A wearable device would not commonly be used for reading books or magazines.



More information:

220-1001, Objective 1.4 - Mobile Devices

<https://professormesser.link/1001010401>

A81. A company has designed an application platform to scale up when the application use increases during the day, and scale back down at night. Which of the following BEST describes this characteristic of cloud computing?

- A. Resource pooling
- B. Measured service
- C. Hybrid
- D. Rapid elasticity

The Answer: D. Rapid elasticity

Scaling up and down as needed is a significant characteristic of cloud computing. This allows organizations to manage and pay for resources when busy, but save time and money when the resources are no longer needed.

The incorrect answers:

A. Resource pooling

To provide rapid elasticity, there needs to be plenty of resources available when needed. Resource pooling puts all of the computing power in one place, and portions of the pool can be distributed as-needed.

B. Measured service

Tracking costs and utilization is useful for tracking and billing, and a measured service provides a way to monitor and view the use of cloud-based resources.

C. Hybrid

A hybrid cloud model combines both public and private clouds together. The hybrid cloud does not describe the scalability of these cloud deployment models.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

A82. A user's tablet has stopped responding to any type of finger input on the screen. The clock and other tablet functions appear to be working. Which of the following would be the BEST way to correct this issue?

- A. Replace the screen
- B. Reset the wireless network
- C. Connect to a power source
- D. Restart the tablet

The Answer: D. Restart the tablet

Before making any changes to hardware or software, it's useful to restart the tablet to see if a software glitch may have been the underlying issue.

The incorrect answers:

A. Replace the screen

Without running additional tests, it's impossible to know if the screen is actually the issue. Before switching out any hardware, it's useful to restart the system and run some hardware diagnostics.

B. Reset the wireless network

The wireless network would not have any impact on the screen digitizer. If the tablet was experiencing network issues, then resetting the wireless network may resolve any problems.

C. Connect to a power source

A tablet will continue to provide input to the digitizer, even in situations of low battery life. Connecting to a power source would not be a common solution for this issue.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

- A83.** A user would like to connect a tablet to their laptop computer using 802.11, but they are in a location without a wireless access point. Which of the following would be the BEST way to make this connection?
- A. Enable Bluetooth discovery on the tablet
 - B. Configure infrastructure mode on both devices
 - C. Create shared folders on the laptop computer
 - D. Use ad hoc mode

The Answer: D. Use ad hoc mode

Ad hoc mode allows two devices to directly communicate over an 802.11 wireless link without using an access point.

The incorrect answers:

A. Enable Bluetooth discovery on the tablet

Enabling Bluetooth discovery would allow the tablet to use Bluetooth peripherals, but it would not enable 802.11 networking between the tablet and the laptop.

B. Configure infrastructure mode on both devices

Infrastructure mode is the 802.11 configuration used with an access point. In this question, the two devices need to communicate without using an access point.

C. Create shared folders on the laptop computer

Creating shared folders would potentially allow access from another device, but the network would need to be available to provide the connectivity.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

A84. A server administrator is upgrading the memory in a web server from 16 GB of non-ECC RAM to 64 GB of ECC RAM. After starting the system with the new memory, the computer beeps and nothing is displayed on the screen. Changing the number and location of new RAM modules results in the same beeping sounds and blank screen. After replacing the original 16 GB modules, the system starts normally. Which of the following is the MOST likely reason for this issue?

- A. The new memory is not compatible with the motherboard
- B. The new memory is faulty
- C. The BIOS needs to be updated
- D. The system is overheating during the startup process

The Answer: A. The new memory is not compatible with the motherboard

ECC (Error Correcting Code) memory is designed to detect errors and correct them on the fly. Not all systems use ECC memory, and it's important that the memory matches the motherboard requirements. If non-ECC RAM (Random Access Memory) is replaced with ECC RAM and the system fails to start, then the issue is most likely associated with the change from non-ECC to ECC RAM.

The incorrect answers:

B. The new memory is faulty

Although it's possible that the new RAM is faulty, the more likely and obvious issue is the switch from non-ECC to ECC memory. Before blaming the RAM, it would be useful to know what type of memory the motherboard is expecting.

C. The BIOS needs to be updated

Although a BIOS upgrade may be a rare upgrade requirement, the more obvious issue with this upgrade is related to the memory type.

D. The system is overheating during the startup process

It takes a bit of time to heat up the components inside of a computer, so a failure that occurs at startup is most likely not related to thermal or heat issues inside of the computer.



More information:

220-1001, Objective 3.3 - Memory Technologies

<https://professormesser.link/1001030302>

- A85.** A workstation has been assigned an APIPA address. Which of the following would be the MOST likely reason for this configuration?
- A. The workstation is not connected to the wireless network
 - B. The DNS server is misconfigured
 - C. The network is using public Internet addresses
 - D. The DHCP server is down

The Answer: D. The DHCP server is down

APIPA (Automatic Private IP Addressing) is an IPv4 (Internet Protocol version 4) link-local addressing scheme. If a device does not have a static IP address and an address is not available from a DHCP server, the local device will assign itself an APIPA address so that communication to other APIPA devices on the same subnet will be available.

The incorrect answers:

A. The workstation is not connected to the wireless network

APIPA addresses are used for any IP connected device, regardless of the type of network in use.

B. The DNS server is misconfigured

APIPA addresses are related to the local IP address and the availability of a DHCP server. The DNS server is not involved in the assigning of an APIPA address.

C. The network is using public Internet addresses

Assigned APIPA addresses include the range between 169.254.1.0 and 169.254.254.255. These addresses are considered "link-local" addresses and can only communicate within the same local IP subnet. APIPA addresses are not routable and devices with an APIPA address cannot send or receive traffic to the Internet. APIPA addresses are not public Internet addresses.



More information:

220-1001, Objective 2.6 - Assigning IP addresses

<https://professormesser.link/1001020602>

A86. Which of the following is used to forward traffic based on a destination MAC address?

- A. Unmanaged switch
- B. Repeater
- C. Router
- D. Firewall

The Answer: A. Unmanaged switch

Switches determine how traffic is forwarded based on the destination MAC (Media Access Control) address in the frame. The qualification of managed or unmanaged is not important in this case, since both types of switches make forwarding decisions the same way. The difference between a managed and unmanaged switch are based on other features not associated with the forwarding process.

The incorrect answers:

B. Repeater

A repeater receives a signal, regenerates the signal, and then passes the signal on to the next network link. There are no forwarding decisions occurring inside of a repeater.

C. Router

A router makes forwarding decisions based on the destination IP (Internet Protocol) address of a packet.

D. Firewall

A firewall controls the flow of traffic based on a set of predefined security policies. If the traffic flow matches one of the policies, the firewall can be configured to allow or block that traffic flow.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

A87. A system administrator made some BIOS changes to a desktop computer running Windows 10, and now this message appears when starting the computer:

“This drive can only boot in UEFI mode.”

Which of the following would be the BEST next troubleshooting step?

- A. Modify the boot drive sequence
- B. Enable Secure Boot
- C. Remove the BIOS password
- D. Boot the system with the Windows setup media

The Answer: B. Enable Secure Boot

Secure Boot is part of the UEFI (Unified Extensible Firmware Interface) standard for a computer BIOS (Basic Input Output System). Secure Boot ensures that the underlying operating system has not been modified by malware or any other process.

The incorrect answers:

A. Modify the boot drive sequence

Changing the boot drive sequence in the BIOS would not resolve the UEFI or Security Boot process.

C. Remove the BIOS password

UEFI mode and Secure Boot do not require a boot or management password, and removing any of those passwords will not resolve the error message.

D. Boot the system with the Windows setup media

Booting with separate media would not resolve this issue when booting to the primary storage drive. UEFI mode with Secure Boot is required for this system.



More information:

220-1001, Objective 3.5 - BIOS Security

<https://professormesser.link/1001030506>

A88. A user has spilled coffee on their laptop keyboard, and now the system will not start. The laptop contains a presentation for an upcoming conference. Which of the following would be the BEST way to gain access to this presentation?

- A. Boot the system with a drive image utility
- B. Connect an external monitor and boot from a USB drive
- C. Boot to the Windows Recovery Environment
- D. Remove the storage drive and place it into an external enclosure

The Answer: D. Remove the storage drive and place it into an external enclosure

The current laptop will not boot due to the liquid damage, so the only option would be to remove the storage device from this laptop and use a different computer to access the required presentation files.

The incorrect answers:

A. Boot the system with a drive image utility

Since this laptop will not start, attempting to boot with a drive imaging utility would not be a useful troubleshooting step.

B. Connect an external monitor and boot from a USB drive

Although this would bypass the laptop's storage drive, the primary issue in this system is the liquid damage to the motherboard. Unfortunately, the system will not allow booting to any drive on the laptop.

C. Boot to the Windows Recovery Environment

The Windows Recovery Environment would allow access to the file system if the computer was working, but the liquid damage prevents any software from starting on this laptop.



More information:

220-1001, Objective 3.6 - Peripherals

<https://professormesser.link/1001030601>

A89. A technician is installing a DSL modem at a SOHO facility. Which of the following connectors would be used to connect the DSL modem to the Internet provider line?

- A. RS-232
- B. RJ11
- C. BNC
- D. F-connector

The Answer: B. RJ11

The RJ11 connector (Registered Jack 11) is the modular connector commonly associated with analog POTS (Plain Old Telephone System) lines. Since DSL (Digital Subscriber Line) uses the existing telephone lines, the DSL connection from an Internet Service Provider will also use those same lines with RJ11 connectors. These connectors will be the same for both residential, large-scale commercial, and SOHO (Small Office / Home Office) use.

The incorrect answers:

A. RS-232

RS-232 (Recommended Standard 232) is associated with the transmission of serial data across a link. These are slower speed connections that are commonly used today to connect and manage infrastructure devices such as switches, routers, and firewalls. RS-232 is not used for DSL or any high-speed Internet connection.

C. BNC

BNC (Bayonet Neill–Concelman) connectors are commonly used for coaxial connections used in larger enterprise environments. BNC is not used for SOHO DSL connections.

D. F-connector

The F-connector is the screw-on connector commonly used to attach cable television or cable modem coax connections. F-connectors are not used with twisted-pair copper DSL installations.



More information:

220-1001, Objective 3.2 - Connectors

<https://professormesser.link/1001030201>

A90. Which of the following would be the BEST choice for capturing an image from a printed page and saving it on a computer?

- A. QR code reader
- B. Optical drive
- C. Flatbed scanner
- D. Webcam

The Answer: C. Flatbed scanner

A flatbed scanner is designed to capture images from paper and convert them into digital form.

The incorrect answers:

A. QR code reader

A Quick Response code is the square image at the end of each detailed answer in this book, and the QR code for this question can be found at the bottom of this page. QR codes are used to abbreviate or summarize information into a code that can be easily converted using a QR code scanner or camera.

B. Optical drive

Optical drives, such as DVD-ROM (Digital Versatile Disc - Read Only Memory) readers can store digital information onto an optical disc that can be read by laser beams on the appropriate DVD reader.

D. Webcam

Webcams are designed to capture moving images and not printed pages.



More information:

220-1001, Objective 3.6 - Peripherals

<https://professormesser.link/1001030601>

Practice Exam B

Performance-Based Questions

B1. A system administrator is installing a new 2.4 GHz SOHO wireless router at one of the company's storefronts. A wireless audit has found the existing wireless networks in the area:

SSID	BSSID	Channel	Security
nox	7E:D2:94:CC:44:90	3	WPA2
odyssey	60:3d:26:69:77:DD	1	Open
f-302	00:11:32:77:8B:AA	6	WPA

The store contains the following devices:

Device	IP Address	MAC Address
PointOfSale1	192.168.1.2	11:22:33:44:55:66
CardReader	192.168.1.3	AA:BB:CC:DD:EE:FF
Manager	192.168.1.4	77:88:99:AA:BB:CC

Make the following configurations to this network:

- Select an appropriate channel number.
- Add the SSID of STORE11 to the wireless router.
- Prevent access to the wireless network for all devices except those in the store.
- Enable strongest possible encryption using this key: AB05CCF755.
- Prevent the SSID from appearing in the list of available wireless networks.

Wireless Setup	
Wireless Network:	<input type="button" value="Enable"/> <input type="button" value="Disable"/>
Network Name (SSID):	<input type="text"/>
Channel:	<input type="button" value="1"/> <input type="button" value="2"/> <input type="button" value="3"/> <input type="button" value="4"/> <input type="button" value="5"/> <input type="button" value="6"/> <input type="button" value="7"/> <input type="button" value="8"/> <input type="button" value="9"/> <input type="button" value="10"/> <input type="button" value="11"/>
Broadcast SSID:	<input type="button" value="Enable"/> <input type="button" value="Disable"/>
Security Mode:	<input type="button" value="None"/> <input type="button" value="WEP"/> <input type="button" value="WPA"/> <input type="button" value="WPA2"/>
Network Password:	<input type="text"/>

Network Filtering	
MAC Filtering:	<input type="button" value="Enable"/> <input type="button" value="Disable"/>
Allowed addresses:	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
	<input type="text"/>

B2. Match the printer type to the technology:



Laser

Inkjet

Thermal

Impact

Virtual

3D



Heating element

Ribbon

Ink cartridge

Fuser

Plastic filament

Output file

- B3.** A system administrator is configuring a CAD/CAM workstation and a Network Attached Storage (NAS) device. The CAD/CAM workstation will be used for high-end graphics applications. The NAS device will provide centralized storage of files and documents.

Configure these two systems with the provided hardware options. Each option will be used once.

1 TB SSD	Liquid-cooled CPU
4 TB HD RAID array	CPU fan
16 GB RAM	Headless
64 GB RAM	High-resolution monitor
Built-in video adapter	Built-in NIC
PCIe graphics adapter	High-speed network adapter

	CAD/CAM	NAS
Storage	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
RAM	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
Video	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
Cooling	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
Display	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>
Network	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>

B4. Match these network protocols to their description.

Not all protocols will be used.

-
- | | | | |
|-------------------------------------|-----------------------------------|------------------------------------|-----------------------------------|
| <input type="text" value="SLP"/> | <input type="text" value="SSH"/> | <input type="text" value="LDAP"/> | <input type="text" value="IMAP"/> |
| <input type="text" value="Telnet"/> | <input type="text" value="SMTP"/> | <input type="text" value="HTTPS"/> | <input type="text" value="SNMP"/> |
| <input type="text" value="RDP"/> | <input type="text" value="DHCP"/> | <input type="text" value="AFP"/> | <input type="text" value="CIFS"/> |
-

- | | |
|----------------------|--|
| <input type="text"/> | Transfer files between macOS devices |
| <input type="text"/> | Send email messages from a mobile device |
| <input type="text"/> | Gather statistics from network devices |
| <input type="text"/> | Automatically assign IP addresses |
| <input type="text"/> | Find Mac OS services by name |
| <input type="text"/> | Print from Windows to a network printer |
| <input type="text"/> | Encrypt a terminal connection |

B5. Match the technologies to their description.

Not all technologies will be used.

-
- | | | | |
|---|-------------------------------------|---|--------------------------------------|
| <input type="text" value="Community"/> | <input type="text" value="Hybrid"/> | <input type="text" value="SaaS"/> | <input type="text" value="Metered"/> |
| <input type="text" value="Rapid elasticity"/> | <input type="text" value="IaaS"/> | <input type="text" value="Resource pooling"/> | |
-

- | | |
|----------------------|--|
| <input type="text"/> | Services are available publicly on the Internet and within a private network |
| <input type="text"/> | Individual services are allocated from a larger resource |
| <input type="text"/> | Hardware is available as an on-demand resource |
| <input type="text"/> | Services can scale up or down as needed |

Practice Exam B

Multiple Choice Questions

B6. A server administrator has four identical drives to install into a database server. Which of these RAID types would provide both redundancy and the most available storage space?

- A. RAID 5
- B. RAID 10
- C. RAID 0
- D. RAID 1

Quick
Answer: **157**

The Details: **166**

B7. A user has just restarted their smartphone after performing an OS update, and now they are experiencing slow performance with all of their apps. A hardware diagnostic reports no hardware issues. Which of the following would be the MOST likely reason for this slowdown?

- A. The operating system is corrupted
- B. The battery is charging
- C. The WiFi signal strength is low
- D. The operating system is still updating

Quick
Answer: **157**

The Details: **167**

B8. Jack gets an error message when trying to receive email messages on his smartphone, but he is able to send email messages without a problem. The IMAP server name appears to be correct in the smartphone configuration. Which of the following would be the best NEXT troubleshooting step?

- A. Verify the SMTP server name
- B. Restart the smartphone
- C. Confirm the IMAP username and password
- D. Connect to a different wireless network

Quick
Answer: **157**

The Details: **168**

B9. What kind of IPv6 address starts with fe80: ?

- A.** Link-local
- B.** Broadcast
- C.** Loopback
- D.** Multicast

Quick
Answer: **157**

The Details: **169**

B10. A user has reported that their tablet is not able to retrieve or send mail, browse the Internet, or connect to video conferences. Apps on the device that do not require connectivity are working as expected. Which of these would be the **MOST** likely cause of this issue?

- A.** Battery is very low
- B.** Airplane mode is enabled
- C.** An invalid certificate is installed
- D.** The tablet is overheated

Quick
Answer: **157**

The Details: **170**

B11. A PC technician has been asked to replace the LCD display on a touch-screen laptop computer. Which of the following would be the **MOST** important component to test after this replacement?

- A.** Digitizer
- B.** Keyboard
- C.** Audio controls
- D.** System memory

Quick
Answer: **157**

The Details: **171**

B12. The computers in the shipping department are receiving the message “No connectivity” on their computers. The ipconfig output on one of the computers provides this information:

```
IPv4 Address: 192.168.1.22
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1
```

From this device, a technician is able to successfully ping 127.0.0.1 and 192.168.1.22. The technician can also ping other devices in the shipping department, but cannot receive a ping response from servers in the data center or from the 192.168.1.1 address.

Which of these would be the MOST likely cause of this issue?

- A.** The DHCP server is down Quick
Answer: **157**
- B.** The wireless network is experiencing interference
- C.** The local router is down The Details: **172**
- D.** The Internet provider is experiencing an outage

B13. Jack is planning to travel overseas, and he wants to be sure his tablet computer will have enough power to make it through the long flight. The airline does not guarantee that power outlets will be available during the trip. Which of the following should Jack consider taking on this flight?

- A.** Extra-long USB charging cord Quick
Answer: **157**
- B.** Universal travel adapter
- C.** MicroSD cards The Details: **173**
- D.** External USB chargers

B14. A graphics designer is working on a computer that powers itself off after about an hour of work. The computer tends to power down when working on complex designs that require extensive CPU utilization. Which of the following would be the MOST likely reason for this issue?

- A. The case fans are blocked
- B. The hard drive is failing
- C. The graphics software is corrupted
- D. A device driver is outdated

Quick
Answer: 157

The Details: 174

B15. Which of these services would be associated with a Windows file transfer?

- A. LDAP
- B. SMB
- C. IMAP
- D. AFP

Quick
Answer: 157

The Details: 175

B16. A server administrator is configuring a new system for virtualization. Which of the following configurations would provide virtualization support on an Intel CPU?

- A. Install a 64-bit operating system
- B. Turn on HTT
- C. Allocate a larger amount of storage space to the virtualization partition
- D. Enable VT in the firmware

Quick
Answer: 157

The Details: 176

B17. A user in the shipping department is printing a single page to your laser printer, but the output includes the printed page with three or four pages stuck together underneath it. Which of these would be the most likely cause of this issue?

- A. Duplexer
- B. Transfer belt
- C. Fuser assembly
- D. Separation pad
- E. Imaging drum

Quick
Answer: 157

The Details: 177

- B18.** A company has purchased time on a cloud-based service that provides a hardware platform and no additional software. Which of these would BEST describe this purchase?
- A. SaaS
 - B. Hybrid
 - C. Metered
 - D. IaaS
- Quick
Answer: **157**

The Details: **178**
- B19.** While working at their desk, a laptop user would like to use a full-size keyboard and external mouse. They would also like to connect to a monitor and wired network without connecting and disconnecting cables each time they leave the desk. Which of these would be the BEST way to provide this functionality?
- A. Use separate desktop and laptop computers
 - B. Install a docking station at the user's desk
 - C. Use a wireless access point at the user's desk
 - D. Install a USB hub for the laptop
- Quick
Answer: **157**

The Details: **179**
- B20.** A server administrator would like to archive all of the company's server performance statistics for the past year. The total amount of space used by the statistics files is 7.4 GB of information. Which of these can be used to store this information onto a single disc with a minimum of wasted space?
- A. Blu-ray SL
 - B. CD-ROM
 - C. DVD-RW DL
 - D. Blue-ray DL
- Quick
Answer: **157**

The Details: **180**
- B21.** In which of the following would a cable with a DB-9 connector be used?
- A. Attaching a mouse or keyboard to a desktop computer
 - B. Configuring a router
 - C. Connecting an external storage device
 - D. Attaching a video camera to a computer
- Quick
Answer: **157**

The Details: **181**

B22. A workstation administrator is configuring a new system for graphics designers, and the users have requested the fastest possible storage speed for reading and writing data. Which of the following would be the BEST choice for this requirement?

- A. 10 TB NAS
- B. 8 TB HDD
- C. 5 TB SAN
- D. 2 TB SSD

Quick
Answer: **157**

The Details: **182**

B23. A new laptop is connected to an LCD projector in a conference room. However, the LCD projection shows a compressed picture where squares look more like rectangles. Which of the following would resolve this issue?

- A. Replace the video cable
- B. Change the laptop resolution
- C. Power cycle the projector
- D. Replace the projector bulb

Quick
Answer: **157**

The Details: **183**

B24. A marketing manager is printing twenty copies of a three-page document. The printer outputs twenty copies of page one, twenty copies of page two, and twenty copies of page three. Which of the following would allow the marketing manager print multiple copies in their proper order?

- A. Select the duplex print option
- B. Modify the print sharing permissions
- C. Enable collated output
- D. Change the output orientation

Quick
Answer: **157**

The Details: **184**

B25. A system administrator has been asked to create a group of application server VMs. The application team has provided a list of the hardware requirements for each server. Which of the following tools should the system administrator use to configure the VMs?

A. Memory manager

Quick

B. Hypervisor

Answer: 157

C. Defragmentation utility

The Details: 185

D. Network manager

E. Service manager

B26. A manager needs a device that can provide text message notifications while out of the office without using a mobile phone. Which of the following would BEST fit this requirement?

A. e-Reader

Quick

B. Smart watch

Answer: 157

C. Augmented reality

The Details: 186

D. GPS

B27. A company uses riser cards in all of their rack-mounted servers. Which of the following would BEST describe the use of these riser cards?

A. Improves airflow

Quick

B. Increases PCIe bus throughput

Answer: 157

C. Improves security to PCIe-connected devices

The Details: 187

D. Accommodates larger PCIe adapters

B28. A medical office is installing a new network attached storage device. Which of the following components would be MOST important for this installation? (Choose TWO)

A. SSD

Quick

B. High-end video

Answer: 157

C. Gigabit NIC

The Details: 188

D. Dual monitors

E. Enhanced audio card

F. RAID array

- B29.** A manufacturing company uses a specialized printer that connects to a Windows computer over a USB connection. Which of the following would be the BEST way to allow all Windows devices in the company to send print jobs to this printer?
- A. Connect using AirPrint Quick Answer: 157
 - B. Configure Windows Printer Sharing
 - C. Use Print to File and copy the file to the printer The Details: 189
 - D. Copy the print jobs to a USB drive
- B30.** Which of these would commonly be used to connect to an external storage device?
- A. F-connector Quick Answer: 157
 - B. BNC
 - C. eSATA The Details: 190
 - D. Molex
- B31.** A company has acquired computers that were previously part of a third-party lease. All of the computers prompt for a password when powering on the system before the operating system will load, but the password was not included with the computers. Which of the following would be the BEST way to resolve this issue?
- A. Replace the primary storage drive Quick Answer: 157
 - B. Boot from the Windows installation media
 - C. Reset the BIOS using jumpers on the motherboard The Details: 191
 - D. Disconnect the power cable for ten minutes
- B32.** A user has complained that a laptop will not charge their battery past 25% percent, and the laptop only operates for fifteen minutes when on battery power. The battery and the AC adapter have already been replaced. Which of the following components would be the MOST likely cause of this issue?
- A. Motherboard Quick Answer: 157
 - B. Backlight inverter The Details: 192
 - C. 802.11 adapter
 - D. CPU

B33. A field engineer is working at a remote site that is under construction, but the site does not have an Ethernet or Wi-Fi Internet connection. Which of the following would be the BEST way to get access to the Internet at this location?

- A. Bluetooth
- B. Hotspot
- C. WMN
- D. NFC

Quick
Answer: **157**

The Details: **193**

B34. Which of the following would be the MOST likely reason a laser printer would show an "Out of Memory" error?

- A. The output was designed in color, but the laser printer prints only black and white
- B. The output is a complex graphical diagram
- C. The printer is low on toner and cannot complete the print job
- D. The connection between the computer and the printer is faulty

Quick
Answer: **157**

The Details: **194**

B35. A technician is upgrading the RAM on a laptop computer. Which of the following would BEST describe the memory required for this upgrade?

- A. SSD
- B. SO-DIMM
- C. CMOS
- D. ECC

Quick
Answer: **157**

The Details: **195**

B36. A user in the marketing department requires a device with the following features:

- Display slide presentations to a group without a projector
- Respond to email messages without using a laptop
- View complex graphical documents

Which of the following would BEST meet all of these requirements?

- A. Tablet
- B. Smart phone
- C. e-Reader
- D. Smart watch

Quick
Answer: **157**

The Details: **196**

B37. Daniel is building out a new floor of office space for his company. Which of the following cables would be the BEST choice to install in the active airspace above the drop ceiling?

- A. Plenum-rated
- B. Shielded twisted-pair
- C. Coaxial
- D. PVC jacketed twisted-pair

Quick
Answer: **157**

The Details: **197**

B38. A developer is connecting a laptop to an LCD projector, but the system is displaying artifacts on both screens when the two are connected. Which of the following should resolve this issue?

- A. Disable advanced video features
- B. Turn the projector off and back on again
- C. Change the laptop resolution
- D. Connect the laptop to a power source

Quick
Answer: **157**

The Details: **198**

B39. A graphics designer needs to connect their macOS computer to a second monitor and an external storage drive. Which of the following interface types would provide this connectivity?

- A. Lightning
- B. DisplayPort
- C. DVI-D
- D. Thunderbolt

Quick
Answer: **157**

The Details: **199**

B40. What cloud-based service provides hardware, but still requires the user to setup, configure, and manage the operating system and applications?

- A. SaaS
- B. PaaS
- C. IaaS
- D. DaaS

Quick
Answer: **157**

The Details: **200**

B41. Which of these network types would be MOST associated with a PAN?

- A. ISDN
- B. Bluetooth
- C. Ethernet
- D. Satellite

Quick
Answer: **157**

The Details: **201**

B42. While standing in line at the store, you see another customer use their mobile phone with the contactless payment option. Which of these connection types was used to complete this sales transaction?

- A. Bluetooth
- B. IR
- C. NFC
- D. 802.11

Quick
Answer: **157**

The Details: **202**

- B43.** A manager in the accounting department is complaining of slow performance on her computer. Initial troubleshooting shows low utilization of CPU and memory. A network speed test reports normal throughput to the local network devices. Which of the following would be the BEST next step for troubleshooting this issue?
- A. Boot to Safe Mode Quick
Answer: 157
 - B. Upgrade the BIOS
 - C. Replace the memory modules The Details: 203
 - D. Perform a hard drive diagnostic
- B44.** A server administrator has moved a database server from a lab to a data center. After installing the server in a data center rack, the system does not power on. None of the system lights are on, and the power supply and cooling fans do not spin up. Which of the following should be the FIRST troubleshooting step for this issue?
- A. Replace the power supply Quick
Answer: 157
 - B. Use a multimeter to check motherboard voltages
 - C. Check the power cable The Details: 204
 - D. Replace the motherboard
- B45.** A user is traveling and has enabled airplane mode on their laptop, but they would still like to use their wireless headset. Which of these settings should be enabled to allow this functionality?
- A. Wi-Fi Quick
Answer: 157
 - B. USB
 - C. Bluetooth The Details: 205
 - D. Cellular
- B46.** A production editor is configuring a new video editing workstation. Which of the following would be the MOST important component for this system?
- A. RAID array Quick
Answer: 157
 - B. Dual monitors
 - C. High-end cooling The Details: 206
 - D. Gigabit NIC

B47. A system administrator has been asked to troubleshoot a print server that is no longer operating. The print server displays an error code on the front panel and does not respond to any user input. The system administrator has created a list of four theories that might cause this particular error. Which of the following would be the best NEXT troubleshooting step?

- A. Test each theory on a lab system
- B. Document the theories in the company knowledgebase
- C. Try different theories on the print server until the problem is resolved
- D. Replace the print server device

Quick
Answer: **157**

The Details: **207**

B48. Which of these devices sends incoming traffic to every other port on the device?

- A. Router
- B. Unmanaged switch
- C. Cable modem
- D. Hub

Quick
Answer: **157**

The Details: **208**

B49. Which of these wireless standards was the first to introduce 54 Mbit/sec throughput on the 2.4 GHz band?

- A. 802.11g
- B. 802.11ac
- C. 802.11n
- D. 802.11b

Quick
Answer: **157**

The Details: **209**

B50. An organization has implemented a cloud solution that uses a third-party data center. Access to the cloud service is available to anyone on the Internet. Which of the following describes this deployment model?

- A. Hybrid
- B. Public
- C. Community
- D. Private

Quick
Answer: **157**

The Details: **210**

B51. What voltages would be commonly found on a motherboard's power supply connector?

- A. 120 V AC
- B. 12 V AC, 5 V AC, 3.3 V AC
- C. 12 V DC, 5 V DC, 3.3 V DC
- D. 120 V DC

Quick
Answer: **157**

The Details: **211**

B52. A user is reporting this message on their Windows computer taskbar icon: "Limited or No connectivity." Which of the following would be the best NEXT troubleshooting step?

- A. Check the local IP address configuration
- B. Restart the computer
- C. Ping the default gateway
- D. Check the switch VLAN configuration
- E. Check for a duplicate IP address

Quick
Answer: **157**

The Details: **212**

B53. What kind of device is installed into a computer and directly connects the computer to an Ethernet network?

- A. NIC
- B. Switch
- C. Repeater
- D. Bridge

Quick
Answer: **157**

The Details: **213**

B54. A network administrator is planning to connect the network of two buildings together with a Category 5e cable. Ten Ethernet cables have been run from a wiring closet, through a conduit, and into a wiring closet on the other side. The network administrator needs to identify the ends of the cables so they can be properly terminated on each side. Which of the following should be used to complete this task?

- A. Multimeter
- B. Loopback plug
- C. Tone generator
- D. Crimper

Quick
Answer: **157**

The Details: **214**

- B55.** A server administrator has configured a database server with a RAID 0 array containing four hard drives. An error notification from the RAID controller states that disk 3 has failed. Which of the following would be the BEST way to address this disk failure?
- A. Replace the drive and re-mirror the array Quick
Answer: 157
 - B. Replace the drive and resynchronize the array
 - C. Replace the drive and restore from backup The Details: 215
 - D. Replace all drives and restore from backup
 - E. Replace all drives and resynchronize the array
- B56.** A user on a Windows workstation would like to configure their system to discover Apple devices on the LAN. Which of the following should be installed on the Windows computer?
- A. Bonjour Quick
Answer: 157
 - B. SNMP
 - C. Finder The Details: 216
 - D. NetBIOS
- B57.** A server administrator has replaced a bad hard drive in a RAID array and has verified that the array is operating with full functionality. Which of the following would be the best NEXT troubleshooting step?
- A. Run diagnostics on the bad hard drive Quick
Answer: 157
 - B. Replace the RAID controller
 - C. Create a list of optional troubleshooting steps The Details: 217
 - D. Document the drive replacement
- B58.** An application developer is designing an app that uses three servers running simultaneously as VMs on her desktop. An upgrade to the application will add three additional servers to the list of running VMs. Which of these hardware resources will be the MOST important for this upgrade?
- A. Video adapter Quick
Answer: 157
 - B. Network connection
 - C. RAM The Details: 218
 - D. CPU

B59. Which of these characteristics would be most important for a CAD/CAM workstation? (Choose TWO)

- A. SSD storage
- B. High-end video
- C. Enhanced audio
- D. HDMI interfaces
- E. TV tuner

Quick

Answer: **157**

The Details: **219**

B60. A network engineer is troubleshooting an issue communicating to the Internet over a newly installed DSL connection. A laptop is connected to a DSL router over twisted pair copper. The IP configuration of the laptop is:

IP address: 169.254.228.109

Subnet mask: 255.255.0.0

DNS: 9.9.9.9

Which of the following should be the NEXT troubleshooting step?

- A. Reset the DSL modem
- B. Modify the subnet mask
- C. Change the DNS server address
- D. Check the status of the DHCP server

Quick

Answer: **157**

The Details: **220**

B61. A user in the accounting department has configured their mobile phone for tethering. Which of these would BEST describe this configuration?

- A. Use the phone as a method of payment
- B. Fast-charge the phone
- C. Access the Internet through the phone
- D. Connect to external speakers

Quick

Answer: **157**

The Details: **221**

- B62.** A user has connected an external display to their laptop computer and would like to mirror the contents of the laptop's LCD to the external monitor. Which of these would be the BEST way to provide this functionality?
- A. Modify the video output interface in the BIOS
 - B. Power cycle the external display
 - C. Update the laptop's video driver
 - D. Use the Fn key to toggle between video configurations
- Quick Answer: **157**
The Details: **222**
- B63.** An organization has recently implemented a browser-based email system that requires no additional software on the user devices. Which of the following would describe this type of application?
- A. SaaS
 - B. IaaS
 - C. HaaS
 - D. PaaS
- Quick Answer: **157**
The Details: **223**
- B64.** What type of power supply can operate in countries that use different voltages?
- A. High-voltage
 - B. Primary
 - C. Notched
 - D. Auto switching
- Quick Answer: **157**
The Details: **224**
- B65.** A user is reporting that after starting their desktop, they receive the message "Windows has detected an IP address conflict." Which of the following would be the BEST way to resolve this issue?
- A. Replace the Ethernet patch cable
 - B. Enable DHCP on the workstation
 - C. Bounce the switch port
 - D. Reboot the default gateway
- Quick Answer: **157**
The Details: **225**

- B66.** Daniel has just been issued a new smartphone, and he now has access to email, the corporate VPN, and a secure app for time tracking. Which of the following should be used to manage authentication for all of these services?
- A. SSL Quick
Answer: 157
 - B. Virtualization
 - C. GPS The Details: 226
 - D. SSO
- B67.** Which of the following would be used to terminate a copper Ethernet patch cable?
- A. BNC Quick
Answer: 157
 - B. RS-232
 - C. RJ45 The Details: 227
 - D. DB-9
- B68.** A technician has replaced a laser printer toner cartridge, but now the output does not appear as dark as the original toner cartridge. Which of the following would be the best way to address this issue?
- A. Run a printer calibration Quick
Answer: 157
 - B. Replace the fuser
 - C. Use a laser printer maintenance kit The Details: 228
 - D. Clean the OPC drum
- B69.** A system administrator has just received a laptop that was previously sent out for repair. However, after powering on the computer, the laptop no longer responds to the stylus. Which of the following is the MOST likely reason for this issue?
- A. The GPU requires an updated device driver Quick
Answer: 157
 - B. The display needs a new inverter
 - C. The display needs to be paired to the laptop motherboard The Details: 229
 - D. The digitizer is faulty

- B70.** A graphics designer has noticed that small dots on their screen remain a solid red color, even when the image should be a different color. Which of the following would describe this issue?
- A. Burn-in
 - B. Artifact
 - C. Motion trail
 - D. Stuck pixel
- Quick
Answer: **157**

The Details: **230**
- B71.** A gaming enthusiast has upgraded his home computer from integrated graphics to a separate video adapter card. The computer operates as expected for web browsing and word processing applications. However, playing a game results in the system shutting down after a few minutes of operation. Which of the following would be the MOST likely component causing this issue?
- A. CPU
 - B. Power supply
 - C. RAM
 - D. SSD
- Quick
Answer: **157**

The Details: **231**
- B72.** A network administrator has just installed a new WAP in a downtown office building, but now users are reporting intermittent connectivity to the Internet. Which of the following would be the FIRST thing to check?
- A. SSID broadcast option
 - B. Firmware version
 - C. MAC filter
 - D. Channel interference levels
- Quick
Answer: **157**

The Details: **232**
- B73.** A network administrator would like to prevent wired kiosk workstations from connecting to the wireless network. Which of the following would be the BEST way to provide this type of control?
- A. QoS
 - B. Port forwarding
 - C. UPnP
 - D. MAC filtering
- Quick
Answer: **157**

The Details: **233**

- B74.** A network administrator is installing a wireless network for a new development project. Which of the following would be the BEST configuration for wireless security?
- A. WPS
 - B. WPA
 - C. QoS
 - D. WEP
- Quick
Answer: 157
The Details: 234
- B75.** Users in the marketing department are reporting that one network printer is not working. There are many print jobs in the queue, but none of the jobs have started to print. A test print from the printer's front panel does not print any pages. What is the MOST likely reason for this printing issue?
- A. Printer drivers need to be updated
 - B. Network is disconnected
 - C. Printer hardware has failed
 - D. Print spooler needs to be restarted
- Quick
Answer: 157
The Details: 235
- B76.** A member of the accounting department would like to work remotely while attending a conference in another city. Which of these technologies would BEST provide this functionality?
- A. VLAN
 - B. 802.11
 - C. VPN
 - D. NAT
- Quick
Answer: 157
The Details: 236
- B77.** In which of the following situations would you be MOST likely to use a multimeter?
- A. Identify interference on wireless channels
 - B. Map the pins of an Ethernet cable
 - C. Test packet loss on a router interface
 - D. Locate a specific workstation connection on a punch-down block
- Quick
Answer: 157
The Details: 237

- B78.** A digital graphics department has been using a SAN to store their image files. The team now reports that all of the files on the SAN are no longer accessible. Which of the following should be the **FIRST** thing to check on the SAN?
- A.** RAID array status Quick
Answer: **157**
 - B.** CPU utilization
 - C.** Input voltage The Details: **238**
 - D.** Cache hits
- B79.** A network administrator is troubleshooting an issue in a home with a brand of IoT light switches. Which of these technologies would **MOST** likely be used?
- A.** NFC Quick
Answer: **157**
 - B.** Bluetooth
 - C.** RFID The Details: **239**
 - D.** Zigbee
- B80.** A network administrator has upgraded the wireless router in a small remote location. Now that the upgrade is complete, the computers and laptops on the network are not able to connect to any local servers. Which of the following would be the **MOST** likely reason for this issue?
- A.** The operating systems are not compatible with the new network Quick
Answer: **157**
 - B.** The DHCP configuration has changed The Details: **240**
 - C.** The Internet connection is not active
 - D.** The computers and laptops need to be upgraded

B81. A system administrator needs to replace the keyboard on a laptop, but the vendor has not provided any repair documentation. Which of the following would be the BEST way to handle this issue?

- A. Check the vendor's website each day for a repair document
- B. Replace the entire laptop
- C. Disassemble the laptop case and document the process
- D. Use an external USB keyboard

Quick
Answer: 157

The Details: 241

B82. A user in the accounting department is printing to a thermal printer, but the output is completely blank. Which of the following would be the MOST likely reason for this issue?

- A. Printer is out of toner
- B. Heating element is damaged
- C. Feed assembly is faulty
- D. Fuser is not operating

Quick
Answer: 157

The Details: 242

B83. A user's desktop computer does not start in the morning when the power button is pressed. A technician notices that the screen remains dark, but fans are spinning inside of the computer case. No messages are displayed and no beeps are heard. Which of the following would be the MOST likely reason for this issue?

- A. Faulty RAM
- B. No boot drive found
- C. The CPU is overheating
- D. Bad power supply

Quick
Answer: 157

The Details: 243

B84. A user in the shipping department needs a charging cable for their Android phone. Which of the following connectors would be the MOST likely to work on this phone?

- A. USB-C
- B. Lightning
- C. RJ45
- D. Thunderbolt

Quick
Answer: 157

The Details: 244

B85. A system administrator has installed a KVM switch in a data center. When connecting to one of the remote devices, the keyboard works properly but the mouse does not move. Which of the following should be the FIRST step when troubleshooting this issue?

- A. Replace the KVM mouse
- B. Check the keyboard and mouse connectors
- C. Replace the KVM keyboard
- D. Replace the KVM unit
- E. Replace the remote device mouse

Quick
Answer: **157**

The Details: **245**

B86. A workstation administrator has been asked to troubleshoot an issue with Internet connectivity on a laptop computer. The network status in the taskbar shows a yellow exclamation mark with the message “No Internet access.” When examining the Ethernet connection on the laptop, the cable sheath is an inch short and individual copper wires are visibly disconnected from the RJ45 connector. Which of the following should be used to correct this issue?

- A. Crimper
- B. Punch-down tool
- C. Loopback plug
- D. Multimeter

Quick
Answer: **157**

The Details: **246**

B87. A network administrator needs to connect two sites together that are located on opposite sides of the city. Which of these network connections would be the MOST appropriate?

- A. MAN
- B. PAN
- C. LAN
- D. WAN

Quick
Answer: **157**

The Details: **247**

B88. Which of the following would be the BEST way to remove toner and paper dust from the inside of a laser printer?

- A.** Use a chemical cleaner that removes toner particles
- B.** Run a cleaning page through the printer
- C.** Wipe the inside with a damp cloth
- D.** Use compressed air to blow out the particles

Quick
Answer: **157**

The Details: **248**

B89. A system administrator is connecting a remote site to the Internet over a single pair of copper cabling. Which of the following is the administrator using for this installation?

- A.** PoE switch
- B.** Hub
- C.** DSL modem
- D.** Repeater

Quick
Answer: **157**

The Details: **249**

B90. Which of the following would be MOST associated with a handheld barcode scanner?

- A.** 802.11
- B.** Bluetooth
- C.** DVD-RW
- D.** TRS

Quick
Answer: **157**

The Details: **250**

Practice Exam B

Multiple Choice Quick Answers

B6. A	B36. A	B66. D
B7. D	B37. A	B67. C
B8. C	B38. A	B68. A
B9. A	B39. D	B69. D
B10. B	B40. C	B70. D
B11. A	B41. B	B71. B
B12. C	B42. C	B72. D
B13. D	B43. D	B73. D
B14. A	B44. C	B74. B
B15. B	B45. C	B75. C
B16. D	B46. B	B76. C
B17. D	B47. A	B77. B
B18. D	B48. D	B78. A
B19. B	B49. A	B79. D
B20. C	B50. B	B80. B
B21. B	B51. C	B81. C
B22. D	B52. A	B82. B
B23. B	B53. A	B83. D
B24. C	B54. C	B84. A
B25. B	B55. C	B85. B
B26. B	B56. A	B86. A
B27. D	B57. D	B87. A
B28. C and F	B58. C	B88. C
B29. B	B59. A and B	B89. C
B30. C	B60. D	B90. A
B31. C	B61. C	
B32. A	B62. D	
B33. B	B63. A	
B34. B	B64. D	
B35. B	B65. B	

Practice Exam B

Detailed Answers

B1. A system administrator is installing a new 2.4 GHz SOHO wireless router at one of the company's storefronts. A wireless audit has found the existing wireless networks in the area:

SSID	BSSID	Channel	Security
nox	7E:D2:94:CC:44:90	3	WPA2
odyssey	60:3d:26:69:77:DD	1	Open
f-302	00:11:32:77:8B:AA	6	WPA

The store contains the following devices:

Device	IP Address	MAC Address
PointOfSale1	192.168.1.2	11:22:33:44:55:66
CardReader	192.168.1.3	AA:BB:CC:DD:EE:FF
Manager	192.168.1.4	77:88:99:AA:BB:CC

Make the following configurations to this network:

- Select an appropriate channel number.

The channels on 2.4 GHz wireless networks overlap, so it's common to use channels 1, 6, and 11 to avoid any frequency conflicts. Since channels 1, 3, and 6 are already in use nearby, the best option would be to use channel 11.

- Add the SSID of STORE11 to the wireless router.

The SSID (Service Set Identifier) can be added to the wireless router configuration under the "Network Name (SSID)" option.

- Prevent access to the wireless network for all devices except those in the store.

The only available options for restricting device access is MAC (Media Access Control) filtering in the wireless router. The MAC addresses of the PointOfSale1, CardReader, and Manager devices are added to the allowed addresses in the MAC filtering table.

- Enable strongest possible encryption using this key: AB05CCF755.

WPA2 encryption is the best encryption of the available options, and the key is added to the "Network Password" option of the wireless router.

- Prevent the SSID from appearing in the list of available wireless networks.

SSID broadcast suppression is configured in the "Broadcast SSID" option of the wireless router.

Wireless Setup	
Wireless Network:	<input type="button" value="Enable"/>
Network Name (SSID):	<input type="text" value="STORE11"/>
Channel:	<input type="text" value="11"/>
Broadcast SSID:	<input type="button" value="Disable"/>
Security Mode:	<input type="button" value="WPA2"/>
Network Password:	<input type="text" value="AB05CCF755"/>

Network Filtering	
MAC Filtering:	<input type="button" value="Enable"/>
Allowed addresses:	<input type="text" value="11:22:33:44:55:66"/>
	<input type="text" value="AA:BB:CC:DD:EE:FF"/>
	<input type="text" value="77:88:99:AA:BB:CC"/>
	<input type="text"/>



More information:

220-1001, Objective 2.3 - Configuring a SOHO Firewall

<https://professormesser.link/1001020302>

B2. Match the printer type to the technology:

Thermal

Heating element

A thermal printer uses a heating element to change the color of specially treated paper. Thermal printers print very quietly, but the paper is sensitive to light and heat.

Impact

Ribbon

An impact printer uses a print head to physically impact the printed page. A ribbon is placed between the print head and the page to create marks on the paper.

Inkjet

Ink cartridge

An inkjet printer placed small drops of ink onto a page, and the printer commonly contains cartridges that store the ink.

Laser

Fuser

The fuser assembly of a laser printer uses heat and pressure to melt plastic toner powder and permanently bond the toner to the page.

3D

Plastic filament

3D printers melt plastic filament to create objects in three dimensions.

Virtual

Output file

Instead of printing to paper, a virtual printer digitally prints to a file on the storage system.



More information:

220-1001, Section 3.11 - Print Technologies

<https://professormesser.link/2201001>

- B3.** A system administrator is configuring a CAD/CAM workstation and a Network Attached Storage (NAS) device. The CAD/CAM workstation will be used for high-end graphics applications. The NAS device will provide centralized storage of files and documents.

Configure these two systems with the provided hardware options. Each option will be used once.

	CAD/CAM	NAS
Storage	1 TB SSD	4 TB HD RAID array

CAD/CAM systems often require a large amount of data transfers between the CPU and storage system, so an SSD will provide additional speed and throughput.

A NAS will require a large storage system to support multiple users over the network. A RAID array will ensure that the data remains available if a drive was to fail in the system.

RAM	64 GB RAM	16 GB RAM
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CAD/CAM systems run complex graphical applications, so it would be common for these applications to require additional memory resources. Comparatively, the NAS requires relatively fewer memory resources and can operate with less RAM.

Video	PCIe graphics adapter	Built-in video adapter
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CAD/CAM applications are graphically intensive, so a high-end graphics adapter is a requirement. A NAS device has almost no graphics requirement, so the built-in video adapter is sufficient.

Cooling	Liquid-cooled CPU	CPU fan
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The processor and internal systems of a CAD/CAM system will be pushed to their limits, so an efficient liquid-cooled system will keep everything working properly. The CPU requirements of a NAS are much less demanding, so the built-in CPU fan should handle those systems without an issue.

Display

High-resolution monitor

Headless

A high-resolution monitor is a requirement for graphics applications such as CAD/CAM. Many NAS devices will not have any monitor at all, so it's not unusual to have a headless device with no monitor, keyboard, or mouse.

Network

Built-in NIC

High-speed network adapter

Most of the computing power and data requirements in a CAD/CAM system occur on the local computer itself, so a high-speed network configuration is not the highest priority. A NAS device is primarily a networking device, so the highest speed and most efficient network communication are an important consideration.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

B4. Match these network protocols to their description.

Not all protocols will be used.

AFP

Transfer files between macOS devices

AFP (Apple Filing Protocol) is used for copying, moving, deleting, and other file services in macOS. AFP commonly operates over tcp/548.

SMTP

Send email messages from a mobile device

SMTP (Simple Mail Transfer Protocol) is used to send messages from a device, or to transfer email messages between email servers over tcp/25.

SNMP

Gather statistics from network devices

SNMP (Simple Network Management Protocol) is used to monitor and configure network devices over udp/161. Devices can send alerts (called "traps") to an SNMP console over udp/162.

DHCP

Automatically assign IP addresses

DHCP (Dynamic Host Configuration Protocol) is the primary protocol commonly used to automate the configuration of IP addresses, subnet masks, and other networking options. DHCP uses both udp/67 and udp/68 for these auto-configuration tasks.

SLP

Find Mac OS services by name

SLP (Service Location Protocol) is used to populate the list of available devices on a macOS devices. SLP commonly uses tcp/427 and udp/427.

CIFS

Print from Windows to a network printer

CIFS (Common Internet File System) is also known as SMB (Server Message Block), and it's commonly used on Windows systems for file and printer sharing over tcp/445.

SSH

Encrypt a terminal connection

SSH (Secure Shell) is used to communicate to a terminal screen over an encrypted channel using tcp/22.

**More information:**

220-1001, Common Network Ports

<https://professormesser.link/1001020102>

B5. Match the technologies to their description.

Not all technologies will be used.

Hybrid

Services are available publicly on the Internet and within a private network

A public cloud is available to everyone over the Internet, and a private cloud exists within an organization's own data center. A hybrid model combines both of these into a mix of both public and private cloud components.

Resource pooling

Individual services are allocated from a larger resource

Cloud technologies allow a cloud service provider to create large pools of resources and separate those pools into smaller virtualized groups as needed. This allows the service provider to manage smaller and more powerful groups of hardware devices and separate that hardware into different logical groups.

IaaS

Hardware is available as an on-demand resource

IaaS (Infrastructure as a Service) is sometimes called Hardware as a Service (HaaS). With IaaS, the service provider allocates hardware to be used in the cloud, and it's the responsibility of the customer to install operating systems, applications, and data into the IaaS infrastructure.

Rapid elasticity

Services can scale up or down as needed

Resource demands can change dramatically depending on the time of day, the season of the year, or an advertising campaign. Rapid elasticity allows the infrastructure to grow and shrink based on these changing demands.

Unused answers:

Community cloud-based resources are shared by several organizations simultaneously. These resources straddle the line between a public and private deployment model.

SaaS (Software as a Service) is a cloud model that provides on-demand software with no local installation or local support requirement.

Metered cloud services allow a customer to pay for what they use instead of purchasing resources at a fixed rate.



More information:

220-1001, 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- B6.** A server administrator has four identical drives to install into a database server. Which of these RAID types would provide both redundancy and the most available storage space?
- A. RAID 5
 - B. RAID 10
 - C. RAID 0
 - D. RAID 1

The Answer: A. RAID 5

With RAID 5, three drives would contain user data and the fourth drive would store parity information. This efficient use of space and the included redundancy make RAID 5 the best option.

The incorrect answers:

B. RAID 10

A RAID 10 array can be created with four drives, but two of those drives will be mirrored drives, effectively limiting the available storage space by 50 percent.

C. RAID 0

RAID 0, or striping, does not provide any redundancy and would not meet the requirements in this question.

D. RAID 1

RAID 1 is mirroring, and half of the available storage space would be dedicated to storing redundant data.



More information:

220-1001, Objective 3.4 - RAID

<https://professormesser.link/1001030402>

- B7.** A user has just restarted their smartphone after performing an OS update, and now they are experiencing slow performance with all of their apps. A hardware diagnostic reports no hardware issues. Which of the following would be the MOST likely reason for this slowdown?
- A.** The operating system is corrupted
 - B.** The battery is charging
 - C.** The WiFi signal strength is low
 - D.** The operating system is still updating

The Answer: D. The operating system is still updating

After restarting after an upgrade, it's common for additional housekeeping and conversion functions to continue in the background. This process can sometimes cause the mobile device to slow down or appear sluggish, but the issue is often resolved after the post-installation processes are complete.

The incorrect answers:

A. The operating system is corrupted

A corrupted operating system would commonly restart or provide an error message. If the smartphone is not starting or an error is displayed, then a corrupted operating system may be the culprit.

B. The battery is charging

The battery charging process on a smartphone would not cause the device to suffer from poor performance. A device that is charging should perform just as well as a device that is not charging.

C. The WiFi signal strength is low

A low signal strength might cause certain network processes from performing badly, but it would not slow all applications on the smartphone.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

- B8.** Jack gets an error message when trying to receive email messages on his smartphone, but he is able to send email messages without a problem. The IMAP server name appears to be correct in the smartphone configuration. Which of the following would be the best NEXT troubleshooting step?
- A.** Verify the SMTP server name
 - B.** Restart the smartphone
 - C.** Confirm the IMAP username and password
 - D.** Connect to a different wireless network

The Answer: C. Confirm the IMAP username and password
IMAP (Internet Message Access Protocol) is commonly used for retrieving emails from a central server. Most IMAP configurations require a valid IMAP server address and correct credentials for the mailbox, so it's useful to check those configuration settings before any additional troubleshooting.

The incorrect answers:

A. Verify the SMTP server name

SMTP (Simple Mail Transfer Protocol) is used for sending email messages, so any problems retrieving messages would not be related to SMTP.

B. Restart the smartphone

Although it's true that turning a device off and back on again can sometimes fix a problem, it can be more effective to gather additional information about the issue. In this example, a smartphone should be able to retrieve messages without constantly restarting the phone, so some other setting is most likely the issue.

D. Connect to a different wireless network

It's possible that the current wireless network may have some type of firewall or filtering in place, but it would seem unusual that sending email would not be filtered. Before blaming any external devices, it's useful to know if the mobile device is configured properly.



More information:

220-1001, Objective 1.6

Configuring Email on Mobile Devices

<https://professormesser.link/1001010602>

B9. What kind of IPv6 address starts with fe80: ?

- A.** Link-local
- B.** Broadcast
- C.** Loopback
- D.** Multicast

The Answer: **A.** Link-local

A link-local address is an address that can only communicate to other devices on the same subnet. In IPv6, all link-local addresses start with fe80:.

The incorrect answers:

B. Broadcast

The IPv6 standard does not include a method of sending broadcast frames, so there's no standard address that could be identified as "broadcast."

C. Loopback

In IPv4, loopback frames are defined as anything in the 127.0.0.0/8 range.

In IPv6, the loopback address is

0000:0000:0000:0000:0000:0000:0000:0001/128, or ::1/128.

D. Multicast

In IPv6, multicast addresses start with ff00:.



More information:

220-1001, Objective 2.6 - Assigning IP Addresses

<https://professormesser.link/1001020602>

- B10.** A user has reported that their tablet is not able to retrieve or send mail, browse the Internet, or connect to video conferences. Apps on the device that do not require connectivity are working as expected. Which of these would be the MOST likely cause of this issue?
- A. Battery is very low
 - B. Airplane mode is enabled
 - C. An invalid certificate is installed
 - D. The tablet is overheated

The Answer: B. Airplane mode is enabled

Airplane mode will disable all network connectivity for a device. This would include the 802.11 network, cellular network, and Bluetooth connections. All other device functions will continue to work normally.

The incorrect answers:

A. Battery is very low

A low battery could cause the tablet to enter a power conservation mode, but network connections are usually available when these low power modes are used.

C. An invalid certificate is installed

Invalid certificates would commonly prevent email applications from working properly, but an invalid certificate would not prevent all network communication from working properly. Network traffic that did not rely on any encryption certificates would continue to operate normally.

D. The tablet is overheated

If a mobile device becomes overheated, the entire system will shut down until the internal temperature is lowered to a safe operational range. An overheating tablet would not disable independent features such as the network connection.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

- B11.** A PC technician has been asked to replace the LCD display on a touch-screen laptop computer. Which of the following would be the MOST important component to test after this replacement?
- A. Digitizer
 - B. Keyboard
 - C. Audio controls
 - D. System memory

The Answer: A. Digitizer

A digitizer is built into the LCD display, and it would be the most likely component to have a problem after the entire display has been replaced.

The incorrect answers:

B. Keyboard

Although the keyboard cables can be accidentally dislodged when working inside of a laptop computer, the display and keyboard are usually far enough apart that a keyboard problem would be uncommon.

C. Audio controls

Many laptops include audio controls and buttons on the top of the laptop keyboard, but these controls are not usually replaced or modified when a display is replaced.

D. System memory

The RAM of a computer is not commonly removed or reseated when working on the display, so you would not expect to see any issues with memory once the system is put back together.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

B12. The computers in the shipping department are receiving the message “No connectivity” on their computers. The `ipconfig` output on one of the computers provides this information:

```
IPv4 Address: 192.168.1.22
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1
```

From this device, a technician is able to successfully ping 127.0.0.1 and 192.168.1.22. The technician can also ping other devices in the shipping department, but cannot receive a ping response from servers in the data center or from the 192.168.1.1 address.

Which of these would be the MOST likely cause of this issue?

- A. The DHCP server is down
- B. The wireless network is experiencing interference
- C. The local router is down
- D. The Internet provider is experiencing an outage

The Answer: C. The local router is down

The default gateway is commonly the local router for the IP subnet. If the default gateway address of 192.168.1.1 is not responding to a ping, then the router may not be operational.

The incorrect answers:

A. The DHCP server is down

The IPv4 address assigned to the computer shows an IP address that was either assigned manually or through a DHCP (Dynamic Host Configuration Protocol) server. None of the output or symptoms appear to be related to a faulty DHCP server.

B. The wireless network is experiencing interference

Some ping responses are working normally, so there does not appear to be any evidence of wireless interference.

D. The Internet provider is experiencing an outage

This issue did not appear to be related to any Internet connectivity, so the status of the Internet link would not be an issue.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- B13.** Jack is planning to travel overseas, and he wants to be sure his tablet computer will have enough power to make it through the long flight. The airline does not guarantee that power outlets will be available during the trip. Which of the following should Jack consider taking on this flight?
- A. Extra-long USB charging cord
 - B. Universal travel adapter
 - C. MicroSD cards
 - D. External USB chargers

The Answer: D. External USB chargers

An external USB charger can be used to recharge a device without requiring a power outlet. If you're in an area with no charging options, an external USB charger can provide you with additional battery time.

The incorrect answers:

A. Extra-long USB charging cord

If a power outlet isn't available, having a longer USB (Universal Serial Bus) charging cord isn't going to help very much.

B. Universal travel adapter

When traveling to another country, it's always useful to have devices that can switch between voltage types. A universal travel adapter allows these devices to connect to the different charging outlets used in other countries.

C. MicroSD cards

A microSD card can be used for additional storage on some tablet devices, but additional microSD storage cards won't help extend the battery life of a tablet.



More information:

220-1001, Objective 1.5 - Mobile Device Accessories

<https://professormesser.link/1001010502>

- B14.** A graphics designer is working on a computer that powers itself off after about an hour of work. The computer tends to power down when working on complex designs that require extensive CPU utilization. Which of the following would be the MOST likely reason for this issue?
- A. The case fans are blocked
 - B. The hard drive is failing
 - C. The graphics software is corrupted
 - D. A device driver is outdated

The Answer: A. The case fans are blocked

Most motherboards are designed to power off automatically if the temperatures become excessive. If the case fans are blocked, the inside of the computer will not be able to efficiently cool the system. Eventually, the heat from the heavily-worked CPU will cause the system to power down.

The incorrect answers:

B. The hard drive is failing

A failing hard drive may appear to be working slower than normal, or file system errors may appear when working in an application. A bad hard drive will not commonly power off the computer.

C. The graphics software is corrupted

Problems with software will display an error message on the screen or cause the application to suddenly disappear. An application problem will not commonly cause a computer to power down.

D. A device driver is outdated

It can be important to keep device drivers updated, but an outdated driver will not commonly cause a system to power down. A problem with a device driver will cause an error message in the operating system or application.



More information:

220-1001, Objective 5.2 -

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- B15.** Which of these services would be associated with a Windows file transfer?
- A. LDAP
 - B. SMB
 - C. IMAP
 - D. AFP

The Answer: B. SMB

SMB (Server Message Block) is the protocol used by Microsoft Windows for file sharing, printer sharing, and other Windows services. SMB commonly uses port 445 to provide direct SMB communication between Windows devices.

The incorrect answers:

A. LDAP

LDAP (Lightweight Directory Access Protocol) is a protocol used to access network directories, such as Microsoft's Active Directory database.

C. IMAP

IMAP (Internet Message Access Protocol) is a popular email protocol used for retrieving message from an email server.

D. AFP

AFP (Apple Filing Protocol) is effectively the Apple version of SMB. File and printing services on macOS and iOS use AFP to manage file processes.



More information:

220-1001, Objective 2.1 - Common Network Ports

<https://professormesser.link/1001020102>

- B16.** A server administrator is configuring a new system for virtualization. Which of the following configurations would provide virtualization support on an Intel CPU?
- A. Install a 64-bit operating system
 - B. Turn on HTT
 - C. Allocate a larger amount of storage space to the virtualization partition
 - D. Enable VT in the firmware

The Answer: D. Enable VT in the firmware

Many Intel processors support VT, or Intel Virtualization Technology. This CPU (Central Processing Unit) feature for virtualization provides hardware support for hypervisors and can make the virtualization process much more efficient than running the virtual machines in a software-only environment.

The incorrect answers:

A. Install a 64-bit operating system

A 64-bit operating system can certainly provide efficient use of the system processor and RAM (Random Access Memory), but a 64-bit OS is not a requirement for running virtual machines on a machine with an Intel CPU.

B. Turn on HTT

Intel's HTT (Hyper-Threading Technology) is used to improve the overall performance of traditional CPUs. HTT is not required to enable virtualization on a system with an Intel CPU.

C. Allocate a larger amount of storage space to the virtualization partition
The amount of storage space to store virtual machines can vary, and there's no requirement to have a dedicated VM storage partition.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

- B17.** A user in the shipping department is printing a single page to your laser printer, but the output includes the printed page with three or four pages stuck together underneath it. Which of these would be the most likely cause of this issue?
- A. Duplexer
 - B. Transfer belt
 - C. Fuser assembly
 - D. Separation pad
 - E. Imaging drum

The Answer: D. Separation pad

The separation pad ensures that the printer will pull a single page from the paper tray at a time. As the separation pad becomes worn, more than one page can be pulled through the laser printing process.

The incorrect answers:

A. Duplexer

A duplexing unit is used to print on both sides of a page without manually flipping the page over during the printing process. A problem with the duplexer might cause a page to jam, but a duplexer would not pull multiple pages at the same time.

B. Transfer belt

The transfer belt is commonly used on color laser printers to collect different toner colors and transfer them to the paper.

C. Fuser assembly

The fuser assembly applies heat and pressure to permanently affix the toner to the page. A bad fuser assembly would not cause multiple pages to be processed at the same time.

E. Imaging drum

A bad imaging drum might cause stray marks or lines down the printed page. A faulty imaging drum would not cause the printer to pick up multiple pages.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- B18.** A company has purchased time on a cloud-based service that provides a hardware platform and no additional software. Which of these would BEST describe this purchase?
- A. SaaS
 - B. Hybrid
 - C. Metered
 - D. IaaS

The Answer: D. IaaS

IaaS (Infrastructure as a Service) is a model that provides the computing platform, but no additional software. The user will usually configure the platform with the appropriate CPU, memory, and storage options, and the service provider is only responsible for the uptime and availability of the hardware platform. The user is generally responsible for all software administration.

The incorrect answers:

A. SaaS

SaaS (Software as a Service) provides a fully developed application for end-user access. The cloud service provider handles the hosting, application development, support, and all other aspects of application services. The users only need to login and use the available service from a browser or app.

B. Hybrid

A hybrid cloud deployment model combines both public cloud and private cloud resources. Public cloud resources would be publicly available, usually across the Internet. Private cloud resources would be restricted to a single organization or small group of organizations.

C. Metered

A metered cloud service is measured and price based on usage. For example, uploading, storing, or downloading documents will be measured and billed based on usage. This is in comparison to a non-metered cloud service, where storage or data transfer may be based on a fixed monthly cost.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- B19.** While working at their desk, a laptop user would like to use a full-size keyboard and external mouse. They would also like to connect to a monitor and wired network without connecting and disconnecting cables each time they leave the desk. Which of these would be the BEST way to provide this functionality?
- A. Use separate desktop and laptop computers
 - B. Install a docking station at the user's desk
 - C. Use a wireless access point at the user's desk
 - D. Install a USB hub for the laptop

The Answer: B. Install a docking station at the user's desk

A docking station provides the laptop with a single connection to video, network, keyboard, mouse, and other peripheral connections on their desk.

The incorrect answers:

A. Use separate desktop and laptop computers

Separate computers would introduce significant additional cost, and the user would need to manage multiple systems and synchronize applications and files between the systems. This would certainly not be the best of the available options.

C. Use a wireless access point at the user's desk

An access point is used to connect 802.11 wireless devices to a wired network. This particular question does not involve wireless network connectivity, and it would be more common to install an access point at a centralized high point of the work area.

D. Install a USB hub for the laptop

Unfortunately, a USB hub wouldn't provide the connectivity required for video output, and it commonly wouldn't include wired network connectivity without additional adapters.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

B20. A server administrator would like to archive all of the company's server performance statistics for the past year. The total amount of space used by the statistics files is 7.4 GB of information. Which of these can be used to store this information onto a single disc with a minimum of wasted space?

- A. Blu-ray SL
- B. CD-ROM
- C. DVD-RW DL
- D. Blue-ray DL

The Answer: C. DVD-RW DL

A DVD-RW DL (Digital Versatile Disc, Read/Write, Dual-Layer) provides 8.5 GB (gigabytes) of available storage space.

The incorrect answers:

A. Blu-ray SL

A Blu-ray SL (Single-Layer) drives can provide 25 GB of storage space, but there would be more wasted space on Blu-ray SL than DVD-RW DL.

B. CD-ROM

A CD-ROM (Compact Disc ROM) supports 700 MB (megabytes) of storage space, making it too small to store the 7.4 GB of data on a single disc.

D. Blue-ray DL

Blue-ray DL (Dual-Layer) can store 50 GB of data, making it the largest amount of wasted space than the other formats.



More information:

220-1001, Objective 3.4 - Storage Devices

<https://professormesser.link/1001030401>

B21. In which of the following would a cable with a DB-9 connector be used?

- A. Attaching a mouse or keyboard to a desktop computer
- B. Configuring a router
- C. Connecting an external storage device
- D. Attaching a video camera to a computer

The Answer: B. Configuring a router

A DB-9 connector, or less commonly, DE-9 (D-subminiature size E, 9 pin) is a connector used to send serial signals to another device. A DB-9 connector on a computer is commonly used to connect to the management interface of a switch, router, firewall, or another infrastructure device.

The incorrect answers:

A. Attaching a mouse or keyboard to a desktop computer

A mouse and keyboard commonly uses USB (Universal Serial Bus) interfaces for connectivity.

C. Connecting an external storage device

External storage devices can connect using many different interface types, including USB, Thunderbolt, eSATA (External Serial AT Attachment), and others. The serial connection of a DB-9 connector would be too slow to support the high throughput required from an external storage device.

D. Attaching a video camera to a computer

Video cameras or webcams commonly use USB connections to support a high-speed connection across devices. DB-9 serial connections would be too slow to support the throughput required of real-time audio and video.



More information:

220-1001, Objective 3.1 - Multipurpose Cables

<https://professormesser.link/1001030104>

- B22.** A workstation administrator is configuring a new system for graphics designers, and the users have requested the fastest possible storage speed for reading and writing data. Which of the following would be the BEST choice for this requirement?
- A. 10 TB NAS
 - B. 8 TB HDD
 - C. 5 TB SAN
 - D. 2 TB SSD

The Answer: D. 2 TB SSD

The most important requirement for this new system is the speed of reading and writing data. Of the available options, the fastest throughput is an SSD (Solid-State Drive). Although the storage space is the lowest of the available options, the users didn't specify any minimum storage size requirements.

The incorrect answers:

A. 10 TB NAS

The throughput of a NAS (Network Attached Storage) is limited by the speed of the network. SSD technology can transfer data at speed that far exceeds most network connections.

B. 8 TB HDD

HDD (Hard Disk Drive) technology uses spinning disks to store and retrieve data. The mechanical nature of HDDs limit the throughput and are much slower relative to SSDs.

C. 5 TB SAN

A SAN (Storage Area Network) is similar to a NAS, where the network limits the overall throughput of the storage subsystem. A locally attached SSD is generally many times faster than a NAS or SAN system.



More information:

220-1001, Objective 3.4 - Storage Devices

<https://professormesser.link/1001030401>

- B23.** A new laptop is connected to an LCD projector in a conference room. However, the LCD projection shows a compressed picture where squares look more like rectangles. Which of the following would resolve this issue?
- A. Replace the video cable
 - B. Change the laptop resolution
 - C. Power cycle the projector
 - D. Replace the projector bulb

The Answer: B. Change the laptop resolution

The resolution setting of an LCD (Liquid Crystal Display) monitor or projector will display information with a specific number of horizontal and vertical pixels. If the resolution of the display is different than the settings on the computer, the output may appear skewed or blurry due to an incorrect aspect ratio. Setting the computer to match the native resolution of the monitor will provide the best possible output.

The incorrect answers:

A. Replace the video cable

A bad video cable would display an image with missing information, static, or brief flashes of the image. Replacing the video cable would not resolve an aspect ratio issue.

C. Power cycle the projector

The projector is properly displaying the signal that is being sent from the computer, so power cycling the projector will not resolve this issue.

D. Replace the projector bulb

If a projector bulb is faulty, then no image will be displayed on the projector. In this case, the image was displayed, but the resolution setting on the computer is incorrect.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

- B24.** A marketing manager is printing twenty copies of a three-page document. The printer outputs twenty copies of page one, twenty copies of page two, and twenty copies of page three. Which of the following would allow the marketing manager print multiple copies in their proper order?
- A. Select the duplex print option
 - B. Modify the print sharing permissions
 - C. Enable collated output
 - D. Change the output orientation

The Answer: C. Enable collated output

Collated output will print each page of a document before printing another copy of that same document. Before printing with the collated option, the printer would output page 1, 1, 1, 2, 2, 2, 3, 3, 3, etc. With the collated option, the printer output would be 1, 2, 3, 1, 2, 3, 1, 2, 3, etc.

The incorrect answers:

A. Select the duplex print option

The duplex print option would print the output on both sides of the page, but it would not change the order in which pages were printed.

B. Modify the print sharing permissions

Modifying the print sharing permissions would allow or limit access to the printer, but it would not change the order of printed pages.

D. Change the output orientation

The output orientation is configured for either portrait mode or landscape mode. Changing the orientation would not change the order of printed pages.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

B25. A system administrator has been asked to create a group of application server VMs. The application team has provided a list of the hardware requirements for each server. Which of the following tools should the system administrator use to configure the VMs?

- A. Memory manager
- B. Hypervisor
- C. Defragmentation utility
- D. Network manager
- E. Service manager

The Answer: B. Hypervisor

A hypervisor is software that manages virtual machines (VMs) and their connection to the physical hardware.

The incorrect answers:

A. Memory manager

A memory manager is the part of an operating system that manages the physical memory used by the OS. A hypervisor manages resources like memory and CPU for the virtual machines.

C. Defragmentation utility

Hard drives often need defragmentation to consolidate pieces of files that have been stored in different places on the drive platters. A drive defragmentation is not used to configure virtual machines.

D. Network Manager

Network manager software is often used to monitor the status of network devices. Network manager software would not be used to configure virtual machines.

E. Service Manager

Operating systems often run many different services in the background. Service managers provide a way to start, stop, and manage those services. A virtual machine would be configured with a hypervisor, and not with a service manager.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

- B26.** A manager needs a device that can provide text message notifications while out of the office without using a mobile phone. Which of the following would BEST fit this requirement?
- A. e-Reader
 - B. Smart watch
 - C. Augmented reality
 - D. GPS

The Answer: B. Smart watch

A smart watch with cellular radio connectivity can provide text messaging and other connectivity features without requiring a mobile phone to be nearby.

The incorrect answers:

A. e-Reader

An e-Reader can provide some connectivity features, but carrying around an e-Reader is a bit large and unnecessary if the only requirement is text message notifications.

C. Augmented reality

Augmented reality devices are designed to integrate the real world with the virtual world. Augmented reality isn't usually associated with text messaging applications.

D. GPS

GPS (Global Positioning System) devices are very useful for mapping travel routes and destinations, but they are not commonly used for text messaging applications.



More information:

220-1001, Objective 1.4 - Mobile Devices

<https://professormesser.link/1001010401>

- B27.** A company uses riser cards in all of their rack-mounted servers. Which of the following would BEST describe the use of these riser cards?
- A. Improves airflow
 - B. Increases PCIe bus throughput
 - C. Improves security to PCIe-connected devices
 - D. Accommodates larger PCIe adapters

The Answer: D. Accommodates larger PCIe adapters

Riser cards extend motherboard expansion slots 90-degrees and allow PCIe (Peripheral Component Interconnect Express) slots to be installed horizontally in a computer or server.

The incorrect answers:

A. Improves airflow

A riser card is not used to modify or improve airflow through a computer.

B. Increases PCIe bus throughput

A riser card changes the direction of PCIe interfaces, but this change in direction does not increase the throughput of the bus.

C. Improves security to PCIe-connected devices

Riser cards do not provide any security features.



More information:

220-1001, Objective 3.5 - Motherboard Expansion Slots

<https://professormesser.link/1001030502>

B28. A medical office is installing a new network attached storage device. Which of the following components would be MOST important for this installation? (Choose TWO)

- A. SSD
- B. High-end video
- C. Gigabit NIC
- D. Dual monitors
- E. Enhanced audio card
- F. RAID array

The Answers: C. Gigabit NIC, and F. RAID array

A NAS (Network Attached Storage) device needs a lot of storage space, and it needs to provide access to that storage across the network. For those reasons, a RAID (Redundant Array of Independent Disks) array and a gigabit NIC (Network Interface Card) are important components of any NAS configuration.

The incorrect answers:

A. SSD

SSD (Solid State Drive) storage allows for fast access times, but the cost of large SSD storage is higher than traditional spinning hard drives. Since a NAS usually contains two or more drives and access time isn't the major requirement, it's usually more economical to use hard disk drives.

B. High-end video

Many NAS devices don't use a monitor, so high-end video would be an unnecessary requirement.

D. Dual monitors

Since many NAS devices don't use a monitor, dual monitors would not be necessary on a NAS device.

E. Enhanced audio card

A NAS device doesn't generally require any audio output, so an enhanced audio card would not be needed.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- B29.** A manufacturing company uses a specialized printer that connects to a Windows computer over a USB connection. Which of the following would be the BEST way to allow all Windows devices in the company to send print jobs to this printer?
- A. Connect using AirPrint
 - B. Configure Windows Printer Sharing
 - C. Use Print to File and copy the file to the printer
 - D. Copy the print jobs to a USB drive

The Answer: B. Configure Windows Printer Sharing
Windows Printer Sharing allows the Windows computer connected to the printer to act as a print server. All devices on the network can view the printer and send print jobs to the printer using the Printer Sharing feature.

The incorrect answers:

A. Connect using AirPrint

AirPrint is a technology used by Apple iOS to print to compatible network printers. AirPrint would not be the default method for printing from Windows devices to a Windows-connected printer.

C. Use Print to File and copy the file to the printer

Using Print to File would create a local print file, but that file would need to be manually copied from the Windows computer at the printer. This process would be time consuming and would interrupt the local Windows user each time a print job was needed.

D. Copy the print jobs to a USB drive

Similar to the Print to File option, putting the print jobs on a USB drive would require a manual process by the user connected to the printer. This can be easily avoided by enabling Printer Sharing and having the users submit the print jobs themselves.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

- B30.** Which of these would commonly be used to connect to an external storage device?
- A. F-connector
 - B. BNC
 - C. eSATA
 - D. Molex

The Answer: C. eSATA

eSATA (External Serial ATA) is the external version of the internal SATA standard. The connectors for eSATA are slightly different than the internal SATA connectors.

The incorrect answers:

A. F-connector

An F-connector is the screw-on connector commonly associated with the coax used for cable television or cable modems. F-connectors and coax are not commonly used to connect external storage devices.

B. BNC

BNC (Bayonet Neill–Concelman) connectors are often used for enterprise network wide area network links or video connections. BNC isn't a common connector type for external storage devices.

D. Molex

Molex commonly refers to the four-pin power connection used for internal computer peripherals. Legacy storage devices, fans, and other internal components may use Molex to power the component.



More information:

220-1001, Objective 3.2 - Connectors

<https://professormesser.link/1001030201>

- B31.** A company has acquired computers that were previously part of a third-party lease. All of the computers prompt for a password when powering on the system before the operating system will load, but the password was not included with the computers. Which of the following would be the BEST way to resolve this issue?
- A. Replace the primary storage drive
 - B. Boot from the Windows installation media
 - C. Reset the BIOS using jumpers on the motherboard
 - D. Disconnect the power cable for ten minutes

The Answer: C. Reset the BIOS using jumpers on the motherboard
The BIOS (Basic Input Output System) of a computer can often be assigned configuration or management passwords that would prevent any changes to the BIOS settings. The BIOS also supports a boot or user password, and the system will not boot until the correct password is entered. This password can often be reset by shorting a jumper on the motherboard and restarting.

The incorrect answers:

A. Replace the primary storage drive

The BIOS password configuration isn't saved on a storage drive, so replacing the drive will not bypass the password.

B. Boot from the Windows installation media

The boot password applies to all boot media, including any attempts to boot from DVD-ROM or USB drive.

D. Disconnect the power cable for ten minutes

The password and BIOS configuration is saved on the motherboard in non-volatile memory. Disconnecting the power will not reset the password or change the BIOS configuration.



More information:

220-1001, Objective 3.5 - BIOS Security

<https://professormesser.link/1001030506>

- B32.** A user has complained that a laptop will not charge their battery past 25% percent, and the laptop only operates for fifteen minutes when on battery power. The battery and the AC adapter have already been replaced. Which of the following components would be the MOST likely cause of this issue?
- A. Motherboard
 - B. Backlight inverter
 - C. 802.11 adapter
 - D. CPU

The Answer: A. Motherboard

The motherboard on a laptop usually contains all of the major subsystems, including the CPU (Central Processing Unit), memory, video, and power. If the laptop will not charge a battery or power the system, then the entire motherboard will need to be replaced.

The incorrect answers:

B. Backlight inverter

A backlight inverter is used on CCFL (Cold Cathode Fluorescent Lamp) displays to convert the internal laptop DC (Direct Current) power source to AC (Alternating Current). The backlight inverter is not part of the laptop's battery charging system.

C. 802.11 adapter

An 802.11 wireless adapter is usually directly connected to the motherboard, and it is responsible for managing the wireless communication to the 802.11 network. A faulty 802.11 adapter would not commonly stop the laptop battery from charging.

D. CPU

The CPU is the primary processor for the laptop. A CPU does not manage the charging process for a laptop battery, and the charging subsystem can operate even when the laptop is completely powered down.



More information:

220-1001, Objective 5.5 - Troubleshooting Laptops

<https://professormesser.link/1001050501>

- B33.** A field engineer is working at a remote site that is under construction, but the site does not have an Ethernet or Wi-Fi Internet connection. Which of the following would be the BEST way to get access to the Internet at this location?
- A. Bluetooth
 - B. Hotspot
 - C. WMN
 - D. NFC

The Answer: B. Hotspot

Configuring a mobile phone as a hotspot allows one or more people to use the phone's Internet connection over Wi-Fi. If Internet isn't currently available from another 802.11 wireless network, then using the hotspot feature can provide an option for Internet access.

The incorrect answers:

A. Bluetooth

Bluetooth is a useful personal area network (PAN), but it won't provide any Internet access by itself.

C. WMN

A WMN (Wireless Mesh Network) is commonly used by Internet of Things (IoT) devices to work together for long distance communications. WMN is not used by itself for Internet access.

D. NFC

NFC (Near Field Communication) is a short-range networking method that is designed to send small amounts of data at a time. It's common to use NFC with a smartphone or smart watch to pay for items in a store, but NFC can't be used to gain Internet access through a smartphone.



More information:

220-1001, Objective 1.6 - Mobile Device Connectivity

<https://professormesser.link/1001010601>

- B34.** Which of the following would be the MOST likely reason a laser printer would show an "Out of Memory" error?
- A. The output was designed in color, but the laser printer prints only black and white
 - B. The output is a complex graphical diagram
 - C. The printer is low on toner and cannot complete the print job
 - D. The connection between the computer and the printer is faulty

The Answer: B. The output is a complex graphical diagram

A laser printer has to build a the entire page of output in memory before the printing process can begin. If the content of the page contains complex graphics, then more memory will be required. If the printer is not able to build the entire page in RAM (Random Access Memory), then the printer will usually print a portion of the page and show an "Out of Memory" error.

The incorrect answers:

A. The output was designed in color, but the laser printer prints only black and white

Printing a color document to a black and white printer will modify the output to print in grayscale, and it will not commonly cause the printer to show a memory error.

C. The printer is low on toner and cannot complete the print job

If the printer toner is low, the printer will usually show a "low toner" error and the output will print normally. Because the toner is low, the output will usually be a bit more faded than normal. If no toner is available in the printer, a blank page will be printed.

D. The connection between the computer and the printer is faulty

A faulty connection between the computer and printer will usually result in no output or an interruption to the output process. This will not commonly result in an "out of memory" error.



More information:

220-1001, Objective 3.11 - Laser Printers

<https://professormesser.link/1001031101>

- B35.** A technician is upgrading the RAM on a laptop computer. Which of the following would BEST describe the memory required for this upgrade?
- A. SSD
 - B. SO-DIMM
 - C. CMOS
 - D. ECC

The Answer: B. SO-DIMM

The SO-DIMM (Small Outline Dual In-line Memory Module) form factor is about half the length of standard DIMMs. This smaller size makes it a common option for memory modules in laptop computers where size is limited.

The incorrect answers:

A. SSD

An SSD (Solid-state Drive) is used as storage on computing devices and is not a RAM (Random Access Memory) technology.

C. CMOS

CMOS (Complementary Metal–Oxide–Semiconductor) is a type of circuitry commonly associated with the BIOS (Basic Input/Output System) of legacy computing devices. CMOS is not used in modern RAM installations.

D. ECC

ECC (Error Correcting Code) memory is a type of RAM that corrects memory errors on the fly. It's common to see ECC RAM used in servers and other important devices, but laptops would not commonly use ECC memory.



More information:

220-1001, Objective 3.3 - Overview of Memory

<https://professormesser.link/1001030301>

B36. A user in the marketing department requires a device with the following features:

- Display slide presentations to a group without a projector
- Respond to email messages without using a laptop
- View complex graphical documents

Which of the following would BEST meet all of these requirements?

- A. Tablet
- B. Smart phone
- C. e-Reader
- D. Smart watch

The Answer: A. Tablet

A tablet is the only device from this list that is large enough to display slide presentations to more than one person, send and receive email messages, and display graphical information on the screen.

The incorrect answers:

B. Smart phone

Although a smart phone can functionally provide most of the user's requirements, the screen on a smart phone is too small to display information to a group of people.

C. e-Reader

An e-Reader is designed for reading books and magazines for a single user. Although many e-Readers have some basic graphic functionality, they often have limited color range and are not designed for presentations.

D. Smart watch

A smart watch normally extends the functionality available in a smart phone, and the screen of a smart watch would not allow for slide-based presentation materials.



More information:

220-1001, Objective 1.4 - Mobile Devices

<https://professormesser.link/1001010401>

- B37.** Daniel is building out a new floor of office space for his company. Which of the following cables would be the BEST choice to install in the active airspace above the drop ceiling?
- A. Plenum-rated
 - B. Shielded twisted-pair
 - C. Coaxial
 - D. PVC jacketed twisted-pair

The Answer: A. Plenum-rated

The plenum space is the area above a drop ceiling that is used for building air circulation. In the case of a fire, this area should contain objects that have specific characteristics when heated. Network cables in this area are categorized as plenum-rated, and their construction will limit smoke and toxic fumes.

The incorrect answers:

B. Shielded twisted-pair

Shielded twisted-pair cables are useful in environments with high amounts of interference. Shielded twisted-pair cabling isn't the first choice for a drop ceiling, and you wouldn't necessarily find more interference in a drop ceiling than in any other network run.

C. Coaxial

Coaxial cable is a good choice for network runs that need to be shielded and run in a more durable environment, but the bulk and difficulty of managing large coaxial cable drops would not make it a good choice for most local area networks.

D. PVC jacketed twisted-pair

PVC (Polyvinyl chloride) is a common jacket type for twisted-pair cabling, but PVC does not provide any protection or suppression of smoke or chemicals during a fire. PVC jacketed cable would not be a good choice for a plenum.



More information:

220-1001, Objective 3.1 - Copper Network Cables

<https://professormesser.link/1001030101>

- B38.** A developer is connecting a laptop to an LCD projector, but the system is displaying artifacts on both screens when the two are connected. Which of the following should resolve this issue?
- A.** Disable advanced video features
 - B.** Turn the projector off and back on again
 - C.** Change the laptop resolution
 - D.** Connect the laptop to a power source

The Answer: **A.** Disable advanced video features

The visual "glitches" displayed by graphical artifacts are often associated with a device driver configuration or with a video adapter hardware problem. Many graphics drivers include advanced features that can sometimes conflict with certain software, and disabling the advanced features can usually correct this issue.

The incorrect answers:

B. Turn the projector off and back on again

An LCD (Liquid Crystal Display) projector is displaying what's sent across the video cable, so restarting the projector wouldn't help to resolve the issue. If the problem is associated with the projector hardware, restarting the projector probably wouldn't help either.

C. Change the laptop resolution

An incorrect resolution will often cause the projected images to skew or appear "squashed." Graphical artifacts aren't commonly associated with an incorrect resolution setting.

D. Connect the laptop to a power source

A low battery or lack of immediate power source would not cause the screen to display artifacts or glitches. Adding additional power to the laptop will help to make the laptop battery last longer, but it won't change what's displayed on the screen.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

- B39.** A graphics designer needs to connect their macOS computer to a second monitor and an external storage drive. Which of the following interface types would provide this connectivity?
- A. Lightning
 - B. DisplayPort
 - C. DVI-D
 - D. Thunderbolt

The Answer: D. Thunderbolt

The Thunderbolt standard was created by Intel to connect external peripherals to a computer at high speeds. The Thunderbolt standard supports many different peripheral types, including displays, external storage, Ethernet network connections, and many others.

The incorrect answers:

A. Lightning

Apple Lightning connections are used to connect a mobile device to a remote peripheral or computer. Lightning connections are not associated with desktop or laptop computers.

B. DisplayPort

As the name implies, DisplayPort connections are commonly used to connect display output devices to computers. DisplayPort is not used to connect external storage devices.

C. DVI-D

DVI-D (Digital Visual Interface-Digital) is used to connect display devices and does not support the connection of external storage devices.



More information:

220-1001, Objective 3.1 - Multipurpose Cables

<https://professormesser.link/1001030104>

- B40.** What cloud-based service provides hardware, but still requires the user to setup, configure, and manage the operating system and applications?
- A. SaaS
 - B. PaaS
 - C. IaaS
 - D. DaaS

The Answer: C. IaaS

IaaS (Infrastructure as a Service) is a service hosting option that provides CPU, memory, network connections, and storage, and the customer installs and manages all of the software that uses the infrastructure hardware.

The incorrect answers:

A. SaaS

SaaS (Software as a Service) is a complete application offering in the cloud. The customer does not install, manage, or support the applications used with a SaaS deployment.

B. PaaS

PaaS (Platform as a Service) is a cloud model that provides a hosted application framework in the cloud. The customer is responsible for development their own application based on the cloud-based framework.

D. DaaS

DaaS (Desktop as a Service) provides cloud-based desktop access and centralized workstation management.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

B41. Which of these network types would be MOST associated with a PAN?

- A. ISDN
- B. Bluetooth
- C. Ethernet
- D. Satellite

The Answer: B. Bluetooth

Bluetooth describes the short-range networks used on many mobile devices. These networks are designed for an individual and are categorized as PANs (Personal Area Networks).

The incorrect answers:

A. ISDN

ISDN (Integrated Services Digital Network) is a circuit-switched network type that communicates over twisted pair telephone lines. ISDN can be used to communicate with other ISDN devices over the telephone network.

C. Ethernet

Ethernet networks are the local wired networks used in many homes and businesses. Most of these networks are categorized as a LANs (Local Area Networks).

D. Satellite

Satellite networks are non-terrestrial networks that use satellites in space to communicate with other stations on the ground.



More information:

220-1001, Objective 2.7 - Network Types

<https://professormesser.link/1001020702>

B42. While standing in line at the store, you see another customer use their mobile phone with the contactless payment option. Which of these connection types was used to complete this sales transaction?

- A. Bluetooth
- B. IR
- C. NFC
- D. 802.11

The Answer: C. NFC

NFC (Near Field Communication) is a limited-area wireless technology, and it's commonly used with payment systems, information exchange, and other quick transactions.

The incorrect answers:

A. Bluetooth

Bluetooth technology is a popular wireless networking method, but it was not designed for quick one-time connections. Sales terminals use NFC to perform these quick data transfers instead of Bluetooth connections.

B. IR

IR (Infrared) is a line-of-sight networking method that was not designed to transfer a lot of information, and it was not designed for speed. Instead of using light, the designers of the point of sale systems selected the short-range radio technology of NFC.

D. 802.11

802.11 wireless is the WiFi networking designed to transfer high speeds over relatively long distances. Because of the larger range used by 802.11, secure financial transactions are not the best use of the 802.11 technology.



More information:

220-1001, Objective 1.5 - Mobile Device Connections

<https://professormesser.link/1001010501>

- B43.** A manager in the accounting department is complaining of slow performance on her computer. Initial troubleshooting shows low utilization of CPU and memory. A network speed test reports normal throughput to the local network devices. Which of the following would be the BEST next step for troubleshooting this issue?
- A. Boot to Safe Mode
 - B. Upgrade the BIOS
 - C. Replace the memory modules
 - D. Perform a hard drive diagnostic

The Answer: D. Perform a hard drive diagnostic

If a slowdown is not associated with CPU, memory, or the network, then the issue may be with some other type of hardware. A diagnostic of the hard drive would identify any issues that could be slowing down the computer.

The incorrect answers:

A. Boot to Safe Mode

Booting to Safe Mode would only provide limited information about this slowdown problem, and it would not be able to verify that the underlying hardware was working properly. Before attempting to identify software issues, it would be useful to know if the hardware was operating as expected.

B. Upgrade the BIOS

The BIOS of a computer would only require upgrading if there was a significant security requirement or feature enhancement. Most computers will never need a BIOS upgrade, and the BIOS would not commonly be modified when troubleshooting performance issues.

C. Replace the memory modules

Bad RAM (Random Access Memory) modules would cause the system to hang, reboot, or cause operating system or application errors. Faulty RAM would not commonly cause a system to perform slower than normal.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drive

<https://professormesser.link/1001050301>

- B44.** A server administrator has moved a database server from a lab to a data center. After installing the server in a data center rack, the system does not power on. None of the system lights are on, and the power supply and cooling fans do not spin up. Which of the following should be the **FIRST** troubleshooting step for this issue?
- A. Replace the power supply
 - B. Use a multimeter to check motherboard voltages
 - C. Check the power cable
 - D. Replace the motherboard

The Answer: C. Check the power cable

When troubleshooting, the easiest possible solution should usually be the first one to check. This particular system has already been in use, and the system administrator was the person who moved it from one location to another. Of the available options, checking the power cable should be the first thing to check when power issues arise.

The incorrect answers:

A. Replace the power supply

Before replacing hardware, it would be useful to learn more about the issue and what the problem could possibly be.

B. Use a multimeter to check motherboard voltages

It's much easier to check the power cable than to open up the computer case, find a multimeter, and check the voltages. However, this would be a good step after checking the power cable and wall outlet voltages.

D. Replace the motherboard

There's nothing in this question that indicates that the issue is related to the motherboard. Before changing any hardware, it would be best to check the simple things first.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- B45.** A user is traveling and has enabled airplane mode on their laptop, but they would still like to use their wireless headset. Which of these settings should be enabled to allow this functionality?
- A. Wi-Fi
 - B. USB
 - C. Bluetooth
 - D. Cellular

The Answer: C. Bluetooth

Bluetooth networks are PANs (Personal Area Networks) that provide a short-distance connection to local peripherals. For example, it's common to use a Bluetooth link to connect to headsets, wireless mice, keyboards, or speakers.

The incorrect answers:

A. Wi-Fi

Wireless headsets don't commonly use 802.11 Wi-Fi connectivity, and most headsets will use Bluetooth because of the lower power consumption and shorter distance requirement.

B. USB

USB connections are wired links and are not affected by airplane mode.

D. Cellular

Connectivity to cellular networks is useful for Internet or VPN connectivity, but it would not be used for wireless headsets.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

- B46.** A production editor is configuring a new video editing workstation. Which of the following would be the MOST important component for this system?
- A. RAID array
 - B. Dual monitors
 - C. High-end cooling
 - D. Gigabit NIC

The Answer: B. Dual monitors

Video editors need one monitor for editing and a second monitor to view the results of the output.

The incorrect answers:

A. RAID array

A RAID (Redundant Array of Independent Disks) array is commonly used to provide uptime and availability of data if a drive fails. Video editing workstations don't usually have this uptime requirement, and most systems can easily have a drive replaced and recover from a backup.

C. High-end cooling

A video editing workstation doesn't create significantly more heat than any other highly utilized computer. Standard air cooling configurations are commonly used for video editing systems.

D. Gigabit NIC

Video editing generally occurs on a single system without the need for any high-speed networking. Some video editing systems may connect to remote storage at speeds exceeding 10 gigabits per second.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- B47.** A system administrator has been asked to troubleshoot a print server that is no longer operating. The print server displays an error code on the front panel and does not respond to any user input. The system administrator has created a list of four theories that might cause this particular error. Which of the following would be the best NEXT troubleshooting step?
- A.** Test each theory on a lab system
 - B.** Document the theories in the company knowledgebase
 - C.** Try different theories on the print server until the problem is resolved
 - D.** Replace the print server device

The Answer: **A.** Test each theory on a lab system

Before a plan of action can be established, it's important to know which plan to follow. Testing each theory can help determine which guesses might resolve the issue and which theories had no effect.

The incorrect answers:

B. Document the theories in the company knowledgebase

Once the problem has been resolved, the issue and resolution can be documented. This is the last step of the troubleshooting process.

C. Try different theories on the print server until the problem is resolved
Randomly testing theories on the production device can be problematic. It can be inefficient to randomly try potential fixes, and it's possible to cause more problems while haphazardly trying different options.

D. Replace the print server device

Before replacing hardware or making any changes, it's useful to understand the issue and why the problem may be occurring.



More information:

220-1001, Objective 5.1 - How to Troubleshoot

<https://professormesser.link/1001050101>

- B48.** Which of these devices sends incoming traffic to every other port on the device?
- A. Router
 - B. Unmanaged switch
 - C. Cable modem
 - D. Hub

The Answer: D. Hub

A hub does not make any forwarding decisions based on the contents of a network frame. When the frame is received by the hub, it sends a copy of that frame to every other interface on the hub.

The incorrect answers:

A. Router

A router makes forwarding decisions based on the destination IP (Internet Protocol) address in the network traffic.

B. Unmanaged switch

Switches use the destination MAC (Media Access Control) address to make forwarding decisions. These forwarding decisions are identical in both managed and unmanaged switches.

C. Cable modem

Cable modems convert signals from a cable network into Ethernet frames. A cable modem does not retransmit incoming information to every other port on the cable modem.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

- B49.** Which of these wireless standards was the first to introduce 54 Mbit/sec throughput on the 2.4 GHz band?
- A. 802.11g
 - B. 802.11ac
 - C. 802.11n
 - D. 802.11b

The Answer: A. 802.11g

802.11g used the same 2.4 GHz frequencies as the 802.11b standard, but the maximum theoretical throughput was increased from 11 megabits per second to 54 megabits per second.

The incorrect answers:

B. 802.11ac

802.11ac networks operate exclusively in the 5 GHz range and can offer a maximum of eight MU-MIMO (Multi-user multiple-input multiple-output) streams with a total maximum throughput of nearly seven gigabits per second.

C. 802.11n

The 802.11n standard can operate on either the 2.4 GHz or 5 GHz bands, and the maximum theoretical throughput is 600 megabits per second.

D. 802.11b

The older 802.11b standard operates on the 2.4 GHz band, but the total throughput is only eleven megabits per second.



More information:

220-1001, Objective 2.4 - Wireless Standards

<https://professormesser.link/1001020401>

- B50.** An organization has implemented a cloud solution that uses a third-party data center. Access to the cloud service is available to anyone on the Internet. Which of the following describes this deployment model?
- A. Hybrid
 - B. Public
 - C. Community
 - D. Private

The Answer: B. Public

Public cloud deployments are for organizations that would like to provide services to anyone on the Internet. Google Mail is an example of a public cloud service.

The incorrect answers:

A. Hybrid

Some organizations will provide services to everyone over a public cloud, but provide internal company services on their own private cloud. This type of model is a hybrid cloud deployment.

C. Community

Purchasing and maintaining an infrastructure of cloud resources can be costly, so one common way to split the cost across several organization is for all of them to combine their resources into a community cloud deployment model.

D. Private

A private cloud deployment consists of internal resources that are only available to a limited group.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- B51.** What voltages would be commonly found on a motherboard's power supply connector?
- A. 120 V AC
 - B. 12 V AC, 5 V AC, 3.3 V AC
 - C. 12 V DC, 5 V DC, 3.3 V DC
 - D. 120 V DC

The Answer: C. 12 V DC, 5 V DC, 3.3 V DC

A computer's power supply provides direct current (DC) at twelve volts, five volts, and 3.3 volts.

The incorrect answers:

A. 120 V AC

One hundred and twenty volts of alternating current (AC) is a common power configuration from the wall outlet to the power supply input. Alternating current is not provided to the motherboard power supply connection.

B. 12 V AC, 5 V AC, 3.3 V AC

A motherboard power supply connector does not receive alternating current from the power supply.

D. 120 V DC

A computer motherboard and the associated components do not require one hundred and twenty volts of direct current.



More information:

220-1001, Objective 3.7 - Computer Power

<https://professormesser.link/1001030701>

- B52.** A user is reporting this message on their Windows computer taskbar icon: "Limited or No connectivity." Which of the following would be the best NEXT troubleshooting step?
- A. Check the local IP address configuration
 - B. Restart the computer
 - C. Ping the default gateway
 - D. Check the switch VLAN configuration
 - E. Check for a duplicate IP address

The Answer: A. Check the local IP address configuration

The message of limited connectivity is usually based on a system that does not have access to network resources. This is often occurs when a system is not able to contact a DHCP (Dynamic Host Configuration Protocol) server and instead assigns itself an APIPA (Automatic Private IP Addressing) address. A check of the local IP address may identify a configuration error or an link-local address.

The incorrect answers:

B. Restart the computer

Restarting the computer might be a good troubleshooting task once the root cause of the issue is identified, but it's not the first step in the troubleshooting process.

C. Ping the default gateway

Pinging the default gateway would probably be a good check once the initial network configuration was validated, but it would not be the next step in the list of troubleshooting tasks.

D. Check the switch VLAN configuration

Most switch VLAN configurations don't change, so verifying the VLAN details would probably not be the next step for troubleshooting.

E. Check for a duplicate IP address

Most operating systems will identify duplicate error messages with a clear notification that a duplicate has been identified on the network.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- B53.** What kind of device is installed into a computer and directly connects the computer to an Ethernet network?
- A. NIC
 - B. Switch
 - C. Repeater
 - D. Bridge

The Answer: A. NIC

A NIC (Network Interface Card) is the hardware that connects a device to a network. Some NICs are integrated into computer motherboards, and other NICs are separate interface cards.

The incorrect answers:

B. Switch

A switch is a network infrastructure device. Switches are not installed into computer systems.

C. Repeater

Repeaters are infrastructure devices that receive network signals, regenerate the signals, and resend those signals to the next network segment. Repeaters are not usually installed into computers.

D. Bridge

Bridges are the precursors to switches, and bridges are not installed into computers.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

- B54.** A network administrator is planning to connect the network of two buildings together with a Category 5e cable. Ten Ethernet cables have been run from a wiring closet, through a conduit, and into a wiring closet on the other side. The network administrator needs to identify the ends of the cables so they can be properly terminated on each side. Which of the following should be used to complete this task?
- A. Multimeter
 - B. Loopback plug
 - C. Tone generator
 - D. Crimper

The Answer: C. Tone generator

A tone generator places an analog audio tone onto the wires of a cable, and an inductive probe is then used on the other side to precisely identify the cable that contains the tone signal. By moving the tone generator to each of the ten cables, the other cable end can easily be identified and labeled.

The incorrect answers:

A. Multimeter

A multimeter can be used to identify voltage levels and continuity, but it's not a useful tool for identifying the ends of two distantly located cables.

B. Loopback plug

Loopback plugs are commonly used to troubleshooting physical network interfaces. Loopback plugs aren't used for identifying cable runs.

D. Crimper

A crimper is used to attach modular connectors to the ends of cables. Crimpers aren't useful for identifying the two ends of a cable run.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

B55. A server administrator has configured a database server with a RAID 0 array containing four hard drives. An error notification from the RAID controller states that disk 3 has failed. Which of the following would be the BEST way to address this disk failure?

- A. Replace the drive and re-mirror the array
- B. Replace the drive and resynchronize the array
- C. Replace the drive and restore from backup
- D. Replace all drives and restore from backup
- E. Replace all drives and resynchronize the array

The Answer: C. Replace the drive and restore from backup

RAID 0 (Redundant Array of Independent Disks, Level 0) is a type of array that provides an efficient storage method at the expense of redundancy. Data in RAID 0 is striped across multiple drives, and if one drive is lost then the data in the array is also lost. To resolve a bad RAID 0 drive, the bad drive will need to be replaced and all of the data must be restored from a backup.

The incorrect answers:

A. Replace the drive and re-mirror the array

Since a portion of the data is lost when the RAID 0 drive failed, there's no way to re-mirror the lost data. The RAID 0 data must be restored from backup.

B. Replace the drive and resynchronize the array

A RAID 5 array would maintain parity information if a drive was lost, and RAID 5 data would only need to be resynchronized after replacing the bad drive. Unfortunately, when a RAID 0 drive fails, data is lost and must be restored from backup.

D. Replace all drives and restore from backup

Only the bad drive would need to be replaced when recovering from any drive failure with RAID arrays.

E. Replace all drives and resynchronize the array

Only the bad drive would need to be replaced when recovering from any drive failure with RAID arrays. Replacing perfectly good drives would be an unnecessary and costly step.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

- B56.** A user on a Windows workstation would like to configure their system to discover Apple devices on the LAN. Which of the following should be installed on the Windows computer?
- A. Bonjour
 - B. SNMP
 - C. Finder
 - D. NetBIOS

The Answer: A. Bonjour

Bonjour is an Apple protocol that assists with discovering Apple devices on the local network. This protocol is included in macOS, and it can be added to Windows by installing Apple software such as iTunes.

The incorrect answers:

B. SNMP

SNMP (Simple Network Management Protocol) is a protocol used primarily by network management workstations to query infrastructure devices. Many network administrators will use SNMP to gather information from switches, routers, servers, and other devices. SNMP is not commonly used outside of the network administration team.

C. Finder

Finder is the file management utility used in macOS, and Finder is not available for Windows. The file manager included in Windows is File Explorer, and there are no Apple protocols included with File Explorer.

D. NetBIOS

The NetBIOS (Network Basic Input/Output System) protocol was used in earlier versions of Windows for name services and data transfers. NetBIOS does not provide any Apple discovery features.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices
<https://professormesser.link/1001031001>

B57. A server administrator has replaced a bad hard drive in a RAID array and has verified that the array is operating with full functionality. Which of the following would be the best NEXT troubleshooting step?

- A. Run diagnostics on the bad hard drive
- B. Replace the RAID controller
- C. Create a list of optional troubleshooting steps
- D. Document the drive replacement

The Answer: D. Document the drive replacement

After an issue has been resolved, the last step of the troubleshooting process is to document the issue, the solution, and any important details that were identified during the process.

The incorrect answers:

A. Run diagnostics on the bad hard drive

Once a hard drive issue is resolved, there's not often a reason to run diagnostics on the faulty drive. The diagnostics would be a useful task during the first troubleshooting step where the problem would need to be clearly identified.

B. Replace the RAID controller

Once full functionality and been restored and tested, the last step would be to document the process. It would not be necessary to continue making changes once the issue was resolved.

C. Create a list of optional troubleshooting steps

There's no need for additional troubleshooting once the problem is resolved.



More information:

220-1001, Objective 5.1 - How to Troubleshoot

<https://professormesser.link/1001050101>

- B58.** An application developer is designing an app that uses three servers running simultaneously as VMs on her desktop. An upgrade to the application will add three additional servers to the list of running VMs. Which of these hardware resources will be the MOST important for this upgrade?
- A. Video adapter
 - B. Network connection
 - C. RAM
 - D. CPU

The Answer: C. RAM

Without any additional information about the applications, the most critical resource for these new servers will be the amount of RAM required to keep all of the operating systems running simultaneously.

The incorrect answers:

A. Video adapter

There's no mention of additional video requirements, so the standard video used for the virtual machines would be sufficient, even when adding three additional servers.

B. Network connection

Network connectivity was not mentioned as a priority, and it's possible that the new servers would only use a minimal amount of network resources.

D. CPU

CPU would probably be the second-most important resource for these new servers, but there was no information provided regarding CPU usage on these servers. In this example, it's possible that the individual servers operate with a minimal amount of CPU usage.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

B59. Which of these characteristics would be most important for a CAD/CAM workstation? (Choose TWO)

- A. SSD storage
- B. High-end video
- C. Enhanced audio
- D. HDMI interfaces
- E. TV tuner

The Answers: A. SSD storage, and B. High-end video

A CAD/CAM (Computer Aided Design / Computer Aided Manufacturing) system will be using applications that have significant graphical requirements and storage needs. For these types of computers, high speed SSD (Solid State Drive) storage and high-end video are a necessity.

The incorrect answers:

C. Enhanced audio

CAD/CAM systems utilize high-end video-centric applications, and it's not common to require enhanced audio capabilities with CAD/CAM applications.

D. HDMI interfaces

The type of video output interface is not as important as having the highest-resolution video possible. A CAD/CAM system could easily use DisplayPort or Thunderbolt for video output.

E. TV tuner

A CAD/CAM system does not need to access television or cable signals using a TV tuner.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

B60. A network engineer is troubleshooting an issue communicating to the Internet over a newly installed DSL connection. A laptop is connected to a DSL router over twisted pair copper. The IP configuration of the laptop is:

IP address: 169.254.228.109

Subnet mask: 255.255.0.0

DNS: 9.9.9.9

Which of the following should be the NEXT troubleshooting step?

- A. Reset the DSL modem
- B. Modify the subnet mask
- C. Change the DNS server address
- D. Check the status of the DHCP server

The Answer: D. Check the status of the DHCP server

A DHCP (Dynamic Host Configuration Protocol) server is the service that automatically distributes IP addresses to the new devices that connect to a network. If the DHCP isn't available, the computer will commonly auto-configure itself with an APIPA (Automatic Private IP Addressing) address. Addresses between the range of 169.254.1.0 through 169.254.254.255 are assigned to devices using APIPA.

The incorrect answers:

A. Reset the DSL modem

There's nothing in the configuration settings that would indicate an issue with the DSL modem. If the DHCP service isn't available, then a similar APIPA address will still be assigned to the laptop.

B. Modify the subnet mask

The subnet mask in this exam has been assigned through the APIPA process, and changing the mask wouldn't solve the issue of communicating to the Internet.

C. Change the DNS server address

Because the APIPA addressing limits communication to the local subnet, changing the DNS server configuration would not solve this communications issue.



More information:

220-1001, Objective 2.6 - Assigning IP addresses

<https://professormesser.link/1001020602>

- B61.** A user in the accounting department has configured their mobile phone for tethering. Which of these would BEST describe this configuration?
- A. Use the phone as a method of payment
 - B. Fast-charge the phone
 - C. Access the Internet through the phone
 - D. Connect to external speakers

The Answer: C. Access the Internet through the phone

Tethering allows a user to turn their phone into an Internet router. A separate device can be physically wired or wirelessly connected to the phone, and the phone then provides access to the Internet over the cellular network.

The incorrect answers:

A. Use the phone as a method of payment

NFC (Near Field Communication) is a short-range wireless network that is commonly used to provide payments at a store's point of sale or credit card terminal.

B. Fast-charge the phone

Although some phones can be quickly charged with the right charger, the process of tethering is not related to the battery charging process.

D. Connect to external speakers

Many mobile device external speakers are used with Bluetooth or through a direct cable connection. Tethering is not related to external speakers or any audio output features.



More information:

220-1001, Objective 2.7 - Internet Connection Types

<https://professormesser.link/1001020701>

B62. A user has connected an external display to their laptop computer and would like to mirror the contents of the laptop's LCD to the external monitor. Which of these would be the BEST way to provide this functionality?

- A. Modify the video output interface in the BIOS
- B. Power cycle the external display
- C. Update the laptop's video driver
- D. Use the Fn key to toggle between video configurations

The Answer: D. Use the Fn key to toggle between video configurations
The laptop's Fn (Function) key can be used with a specially labeled key to control the video output between the internal laptop LCD (Liquid Crystal Display) panel, the external video display, or both simultaneously.

The incorrect answers:

A. Modify the video output interface in the BIOS

The BIOS (Basic Input Output System) of the laptop does not control which video is displayed on the external interface. Most BIOS configurations only allow the video interface to be enabled or disabled.

B. Power cycle the external display

Turning the external display off and back on again may help the laptop identify that an external monitor is connected, but it will not control what specific video output is sent to the external display.

C. Update the laptop's video driver

If the external display was not working at all, then updating drivers may be a useful troubleshooting task. In this question, the user was most interested in mirroring the video from the internal display to the external display.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

B63. An organization has recently implemented a browser-based email system that requires no additional software on the user devices. Which of the following would describe this type of application?

- A. SaaS
- B. IaaS
- C. HaaS
- D. PaaS

The Answer: A. SaaS

SaaS (Software as a Service) is on-demand software. The client does not maintain a local software installation, and the application support is managed by the service provider. Google Mail is an example of SaaS.

The incorrect answers:

B. IaaS

IaaS (Infrastructure as a Service) provides hardware resources to the end user, and the user is responsible for installing an operating system and an application. A web hosting provider that provides a bare metal server would be an example of IaaS.

C. HaaS

HaaS (Hardware as a Service) is another term for IaaS. A user is provided CPU, memory, and storage with HaaS, and will usually install and operating system and application on the hosted hardware infrastructure.

D. PaaS

PaaS (Platform as a Service) is a service that provides the building blocks for application developers. The servers and software are managed by the service provider, and the user is responsible for putting together the application modules to fit their needs. Salesforce.com offers a number of PaaS products.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- B64.** What type of power supply can operate in countries that use different voltages?
- A. High-voltage
 - B. Primary
 - C. Notched
 - D. Auto switching

The Answer: D. Auto switching

An auto switching power supply can automatically detect and use different input voltages without the need to manually select an input voltage before connecting. This is especially useful when using equipment in countries that provide 120 volts of alternating current, and then moving that same equipment in a country that uses 240 volts of alternating current.

The incorrect answers:

A. High-voltage

All power supplies could be considered to be high-voltage. The type of power supply that can be used with different voltages would best be described as auto switching.

B. Primary

Infrastructure devices such as servers or switches may have multiple power supplies for redundancy. In these systems, one power supply may be the primary supply, and the other power supply would be the secondary supply.

C. Notched

Power supplies are not commonly categorized as "notched," but there are some power supply cables that use notches to make sure the correct input cable is being used with the power supply.



More information:

220-1001, Objective 3.7 - Computer Power

<https://professormesser.link/1001030701>

- B65.** A user is reporting that after starting their desktop, they receive the message “Windows has detected an IP address conflict.” Which of the following would be the BEST way to resolve this issue?
- A. Replace the Ethernet patch cable
 - B. Enable DHCP on the workstation
 - C. Bounce the switch port
 - D. Reboot the default gateway

The Answer: B. Enable DHCP on the workstation

One of the more useful features of a DHCP (Dynamic Host Configuration Protocol) server is the controlled assignment of IP (Internet Protocol) addresses. If the DHCP server is assigning all IP addresses, then a duplicate is unlikely. If a device is configured for manual addressing, then configuring the device to receive IP addresses via DHCP can avoid possible address duplication.

The incorrect answers:

A. Replace the Ethernet patch cable

A bad patch cable might limit communication to a network, but it would not create an IP address conflict.

C. Bounce the switch port

"Bouncing" a switch port involves disabling and re-enabling the interface, and this is effectively the same thing as turning a computer off and back on again. If a manual IP address is configured, then the IP address conflict will still be in place when the computer restarts or the link is re-enabled.

D. Reboot the default gateway

An IP address conflict is an issue on the network devices, and restarting the default gateway will not resolve the conflict.



More information:

220-1001, Objective 2.6 - Assigning IP Addresses

<https://professormesser.link/1001020602>

- B66.** Daniel has just been issued a new smartphone, and he now has access to email, the corporate VPN, and a secure app for time tracking. Which of the following should be used to manage authentication for all of these services?
- A. SSL
 - B. Virtualization
 - C. GPS
 - D. SSO

The Answer: D. SSO

SSO (Single Sign-on) is a common method of managing the authentication process. The user provides their authentication credentials one time, and those credentials are used to provide access to all services without requiring the user to authenticate separately to each service.

The incorrect answers:

A. SSL

SSL (Secure Sockets Layer) is a common way to encrypt data between a web browser and web server, but SSL doesn't manage the authentication process for multiple services.

B. Virtualization

Virtual environments can be used to run multiple operating systems or applications on a single physical device. Virtualization by itself doesn't provide any authentication functionality for network services.

C. GPS

GPS (Global Positioning System) information can be used to help identify the location of a user, but it doesn't include any authentication functionality.



More information:

220-1001, Objective 1.7 - Mobile Device Synchronization
<https://professormesser.link/1001010701>

- B67.** Which of the following would be used to terminate a copper Ethernet patch cable?
- A. BNC
 - B. RS-232
 - C. RJ45
 - D. DB-9

The Answer: C. RJ45

Copper Ethernet cables are commonly terminated with an 8P8C (Eight Position / Eight Conductor) RJ45 (Registered Jack 45) standard connector.

The incorrect answers:

A. BNC

BNC (Bayonet Neill–Concelman) connectors are connectors that are commonly used for coaxial cables. The bayonet on a BNC connector twists and locks onto a BNC interface to ensure a solid connection.

B. RS-232

RS-232 (Recommended Standard 232) is a serial communication standard that commonly uses DB-25 (D-subminiature size B, 25 pin) or DE-9 (D-subminiature size E, 9 pin) as a connector type. This standard technically refers to the signal sent between devices and not the connector type, although DB-25 and DE-9 are commonly related to RS-232 connections.

D. DB-9

DB-9 connections are technically DE-9 connections, although the industry has historically combined the names of the DB-25 and DE-9 to incorrectly name a DE-9 connector as DB-9. DB-9/DE-9 connectors are not used to terminate Ethernet connections, and are more commonly used for serial communication.



More information:

220-1001, Objective 3.1 - Copper Network Cables

<https://professormesser.link/1001030101>

- B68.** A technician has replaced a laser printer toner cartridge, but now the output does not appear as dark as the original toner cartridge. Which of the following would be the best way to address this issue?
- A. Run a printer calibration
 - B. Replace the fuser
 - C. Use a laser printer maintenance kit
 - D. Clean the OPC drum

The Answer: A. Run a printer calibration

A laser printer calibration allows the user to adjust the amount of toner used for the output. Different models of toner cartridges can cause the amount of toner output to vary, and the calibration process adjusts the toner output to the best levels.

The incorrect answers:

B. Replace the fuser

The laser printer's fuser uses heat and pressure to permanently affix the toner to the page. The fuser does not have a significant effect on the toner levels of the printed page.

C. Use a laser printer maintenance kit

Maintenance kits are designed to replace the most-used components of a laser printer. These will wear over time, and the maintenance kit provides a new working component. Most maintenance kits include new feed rollers, new fuser units, and other moving parts.

D. Clean the OPC drum

The OPC (Organic Photo Conductor) drum is cleaned during each rotation inside of the printer itself. The drum does not need to be manually cleaned, and a dirty OPC drum would cause stray marks or lines on the printed page and not a faded image.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- B69.** A system administrator has just received a laptop that was previously sent out for repair. However, after powering on the computer, the laptop no longer responds to the stylus. Which of the following is the MOST likely reason for this issue?
- A. The GPU requires an updated device driver
 - B. The display needs a new inverter
 - C. The display needs to be paired to the laptop motherboard
 - D. The digitizer is faulty

The Answer: D. The digitizer is faulty

The digitizer converts the touch of a finger or a stylus to digital signals that can be used by the computer. If the digitizer is not operational, then the screen will not be able to interpret the input from a stylus.

The incorrect answers:

A. The GPU requires an updated device driver

Updating an existing device driver will not generally provide additional features or functionality such as finger or stylus input.

B. The display needs a new inverter

The inverter in a CCFL (Cold Cathode Fluorescent Lamp) LCD (Liquid Crystal Display) is used to convert DC (Direct Current) power to AC (Alternating Current) for the backlight. If the laptop had a bad inverter, then the information on the screen would be almost impossible to read because of the missing backlight.

C. The display needs to be paired to the laptop motherboard

A laptop display is physically connected to the rest of the laptop and does not require any separate pairing process to use touch or stylus input.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

- B70.** A graphics designer has noticed that small dots on their screen remain a solid red color, even when the image should be a different color. Which of the following would describe this issue?
- A. Burn-in
 - B. Artifact
 - C. Motion trail
 - D. Stuck pixel

The Answer: D. Stuck pixel

A stuck pixel is a single dot (pixel) on the screen that remains a single color and does not change with the image. These pixels are usually more obvious when the entire screen is black, but a single pixel remains "stuck" as red, green, or another color. A pixel that does not display any color is often called a "dead" pixel.

The incorrect answers:

A. Burn-in

If a display shows a single image over a long period of time, it's possible for the image to remain visible on the screen when the output changes. This ghosting effect can sometimes be permanently "burned-in" to the display.

B. Artifact

Artifacts are images that appear on the screen that should not be displayed. These are sometimes errors associated with a graphics driver, but they can also indicate a hardware problem with the graphics adapter.

C. Motion trail

A motion trail is a visual cue that is often associated with a video driver problem. For example, moving the mouse across the screen should show a single arrow, but motion trails might show many hundreds of arrows that make a "trail" between the start and finish of the mouse movement.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

B71. A gaming enthusiast has upgraded his home computer from integrated graphics to a separate video adapter card. The computer operates as expected for web browsing and word processing applications. However, playing a game results in the system shutting down after a few minutes of operation. Which of the following would be the MOST likely component causing this issue?

- A. CPU
- B. Power supply
- C. RAM
- D. SSD

The Answer: B. Power supply

Adding additional components to a computer can often increase the power usage, and video adapter cards are one of the most power-hungry devices that you can add to a computer. If a system is displaying errors or shutting down during periods of heavy use, then the issue is commonly related to heat or power.

The incorrect answers:

A. CPU

A common symptom of a bad CPU (Central Processing Unit) would be application and operating system errors. A faulty CPU would not commonly cause the entire computer to shut down.

C. RAM

Faulty RAM (Random Access Memory) can cause application and operating system errors, and it's common to see Windows Stop errors randomly appear with bad RAM. Bad memory would not commonly cause a computer to completely shut down.

D. SSD

A bad SSD (Solid State Drive) would show file system errors in the operating system or application. A problematic SSD would not commonly cause a computer to shut down.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

B72. A network administrator has just installed a new WAP in a downtown office building, but now users are reporting intermittent connectivity to the Internet. Which of the following would be the FIRST thing to check?

- A. SSID broadcast option
- B. Firmware version
- C. MAC filter
- D. Channel interference levels

The Answer: D. Channel interference levels

In areas with many different organizations located near each other, it's possible that the frequencies used on different WAPs (Wireless Access Points) could conflict with each other and cause interference with wireless communication. In busy areas, it's recommend to perform an analysis of the current frequencies in use before installing a new access point.

The incorrect answers:

A. SSID broadcast option

The SSID (Service Set Identifier) is used to populate the list of available wireless networks. Enabling or disabling the SSID broadcasts would not cause intermittent connectivity over the wireless network.

B. Firmware version

A firmware update in the WAP might offer a performance modification, security patch, or a bug fix. However, most normal wireless operations would not be changed through a firmware update, and a firmware update would most likely not resolve an issue with intermittent connectivity.

C. MAC filter

MAC (Media Access Control) filters are used to administratively control physical devices from accessing the wireless network. A MAC address would not cause intermittent connectivity for existing devices, however.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- B73.** A network administrator would like to prevent wired kiosk workstations from connecting to the wireless network. Which of the following would be the BEST way to provide this type of control?
- A. QoS
 - B. Port forwarding
 - C. UPnP
 - D. MAC filtering

The Answer: D. MAC filtering

Filtering on a MAC (Media Access Control) address allows the network administrator to control which physical devices can connect to a network. If the kiosk workstations are added to a MAC address blacklist, those specific devices will be blocked from connecting to the wireless network.

The incorrect answers:

A. QoS

QoS (Quality of Service) allows the administrator to change the priority of certain traffic types on the network. For example, QoS can be configured to provide a higher priority to voice traffic than file transfer traffic. QoS is not designed to be an access control mechanism.

B. Port forwarding

Port forwarding is used to allow external devices to access internally hosted services. Port forwarding is not a method of access control.

C. UPnP

UPnP (Universal Plug and Play) allows network devices to automatically locate and configure other network devices. UPnP is not used as a method to allow or prevent access to a network.



More information:

220-1001, Objective 2.3 - Configuring a SOHO Firewall
<https://professormesser.link/1001020302>

- B74.** A network administrator is installing a wireless network for a new development project. Which of the following would be the BEST configuration for wireless security?
- A. WPS
 - B. WPA
 - C. QoS
 - D. WEP

The Answer: B. WPA

WPA (Wi-Fi Protected Access) encryption is one of most useful security features on a wireless network. Version two, or WPA2, is one of the more popular versions of this encryption standard, and it's common to see this encryption type enabled on secure wireless networks.

The incorrect answers:

A. WPS

WPS (Wi-Fi Protected Setup) is a standard that was designed to simplify the process of connecting a device to a secure wireless network. Unfortunately, WPS suffers from a number of vulnerabilities that would allow an unauthorized user to connect to the network. A common best practice is to disable WPS on any wireless access point.

C. QoS

QoS (Quality of Service) allows a system administrator to change the priority of certain traffic types. For example, VoIP (Voice over IP) traffic may have a higher priority than web browsing traffic. Using QoS on a network does not provide any additional security features, however.

D. WEP

WEP (Wired Equivalent Privacy) is the precursor to WPA and WPA2 encryption. Due to cryptographic vulnerabilities in the WEP standard, most networks now use WPA2 encryption instead of the less-secure WEP standard.



More information:

220-1001, Objective 2.3 - Installing a SOHO Network

<https://professormesser.link/1001020301>

- B75.** Users in the marketing department are reporting that one network printer is not working. There are many print jobs in the queue, but none of the jobs have started to print. A test print from the printer's front panel does not print any pages. What is the MOST likely reason for this printing issue?
- A. Printer drivers need to be updated
 - B. Network is disconnected
 - C. Printer hardware has failed
 - D. Print spooler needs to be restarted

The Answer: C. Printer hardware has failed

If the printer was operational, then a printer check from the front panel should provide output. The test print bypasses the network and print spooler and provides a check for print quality. If the local test print isn't working, then the printer itself has some type of hardware failure.

The incorrect answers:

A. Printer drivers need to be updated

The printer drivers are loaded on client workstations to properly format a print job for the printer. An incorrect printer driver would not prevent the test print from working properly.

B. Network is disconnected

A disconnected network would certainly cause all of the print jobs to be waiting in the print queue, but it would not prevent the printer from processing a test print from the front panel of the printer.

D. Print spooler needs to be restarted

A failed print spooler would be another reason for jobs to be stuck in the queue, but the test prints should still work properly from the printer's front console panel.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- B76.** A member of the accounting department would like to work remotely while attending a conference in another city. Which of these technologies would BEST provide this functionality?
- A. VLAN
 - B. 802.11
 - C. VPN
 - D. NAT

The Answer: C. VPN

A VPN (Virtual Private Network) would allow a remote user to connect back to the corporate office over a secure encrypted tunnel.

The incorrect answers:

A. VLAN

A VLAN (Virtual Local Area Network) is a common way to segment devices on a switched network. VLANs do not provide any remote access functionality.

B. 802.11

802.11 wireless networks are commonly used at conferences and hotels, but the wireless network itself does not provide any remote access capabilities. A VPN would operate over wired or wireless networks to provide a secure remote access connection.

D. NAT

NAT (Network Address Translation) is used to change the source or destination IP (Internet Protocol) address as it traverses the network. NAT functionality is usually configured in a router or firewall. Although NAT can help with IP address management, NAT does not provide any remote access capabilities.



More information:

220-1001, Objective 2.6 - Using IP Addresses

<https://professormesser.link/1001020603>

B77. In which of the following situations would you be MOST likely to use a multimeter?

- A. Identify interference on wireless channels
- B. Map the pins of an Ethernet cable
- C. Test packet loss on a router interface
- D. Locate a specific workstation connection on a punch-down block

The Answer: B. Map the pins of an Ethernet cable

The continuity feature of a multimeter can be used to create a wire map if both ends of the cable are relatively close to each other.

The incorrect answers:

A. Identify interference on wireless channels

A wireless analyzer would be the best tool to use for identifying any problems with wireless frequencies. A multimeter will not provide any information about wireless frequencies.

C. Test packet loss on a router interface

A loopback cable or loopback connector can be used to troubleshoot problems with a physical interface. When data is sent out of the interface, the loopback cable redirects the signal back to the same interface.

D. Locate a specific workstation connection on a punch-down block

Finding the needle in a haystack of cables is made much easier by using a tone generator and an inductive probe. A multimeter is not commonly used to locate the end of a long cable run.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

- B78.** A digital graphics department has been using a SAN to store their image files. The team now reports that all of the files on the SAN are no longer accessible. Which of the following should be the **FIRST** thing to check on the SAN?
- A.** RAID array status
 - B.** CPU utilization
 - C.** Input voltage
 - D.** Cache hits

The Answer: A. RAID array status

A SAN (Storage Area Network) is a network-connected storage array. If the SAN is unavailable, then it's possible that the drive array is having a technical issue. The first thing to check on the SAN is the sharing service and network connectivity. Once those are verified to be working, the troubleshooting can continue.

The incorrect answers:

B. CPU utilization

A high amount of CPU utilization on the SAN could cause the system to perform slowly, but the drive array would usually still be available on the network. A SAN is usually a single-purpose system, and it would not be common to experience high utilization.

C. Input voltage

The input voltage of a device is determined during the installation process, and it would be very unusual for the voltage to change. A power-related issue on a device might be a power supply failure or an issue with the power cable. An input voltage issue would not commonly be the first thing to check.

D. Cache hits

Caching is designed to improve performance when reading or writing to a drive. A caching problem may cause performance to suffer, but the data would still be available to users.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

- B79.** A network administrator is troubleshooting an issue in a home with a brand of IoT light switches. Which of these technologies would MOST likely be used?
- A. NFC
 - B. Bluetooth
 - C. RFID
 - D. Zigbee

The Answer: D. Zigbee

Zigbee is a common mesh wireless technology used for IoT (Internet of Things) devices. Zigbee uses the 900 MHz and 2.4 GHz frequencies of the ISM (Industrial, Scientific, and Medical) band to provide communication between lights, doors, and other IoT devices.

The incorrect answers:

A. NFC

NFC (Near Field Communication) is a type of RFID (Radio Frequency Identification) communication designed for small amounts of data over a short range. One common use of NFC is mobile device payments at a store's point of sale terminal.

B. Bluetooth

Bluetooth provides high speed communication over short distances, and it's primarily used to connect mobile devices to headsets, health monitors, smart watches, and more.

C. RFID

RFID (Radio Frequency Identification) is useful for identification and tracking, but it's not a useful technology for meshed IoT networks.



More information:

220-1001, Objective 2.4 - Wireless Network Technologies

<https://professormesser.link/1001020402>

- B80.** A network administrator has upgraded the wireless router in a small remote location. Now that the upgrade is complete, the computers and laptops on the network are not able to connect to any local servers. Which of the following would be the MOST likely reason for this issue?
- A. The operating systems are not compatible with the new network
 - B. The DHCP configuration has changed
 - C. The Internet connection is not active
 - D. The computers and laptops need to be upgraded

The Answer: B. The DHCP configuration has changed
SOHO (Small Office / Home Office) routers often include many different components, including a wireless access point, network switch, DHCP (Dynamic Host Configuration Protocol) server, and more. The IP addressing scheme can sometimes be different between models, so any of the existing network devices may require the renewal of their DHCP-obtained IP addresses before they can communicate to each other.

The incorrect answers:

A. The operating systems are not compatible with the new network
It would be uncommon to find an operating system that would not be compatible with a wireless or wired network.

C. The Internet connection is not active
In this scenario, the communications issues are to the local servers. Although the Internet should also be tested, the current issue is not related to Internet connectivity.

D. The computers and laptops need to be upgraded
If the computers and laptops were working properly on the old network configuration, then they should also work properly on the new configuration.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks
<https://professormesser.link/1001050701>

- B81.** A system administrator needs to replace the keyboard on a laptop, but the vendor has not provided any repair documentation. Which of the following would be the BEST way to handle this issue?
- A. Check the vendor's website each day for a repair document
 - B. Replace the entire laptop
 - C. Disassemble the laptop case and document the process
 - D. Use an external USB keyboard

The Answer: C. Disassemble the laptop case and document the process. Although it's common to find hardware guides, you'll occasionally need to work on equipment that does not have any documentation or the documentation is not available to you. In these circumstances, the only option may be to disassemble the device and document each step of the repair process yourself.

The incorrect answers:

A. Check the vendor's website each day for a repair document
Some vendors don't provide repair documentation, so you may be waiting indefinitely for some manuals to appear on a vendor web site.

B. Replace the entire laptop
Replacing an entire laptop for a single bad component would not be very cost effective. Replacing a keyboard is usually a straightforward repair, so performing the repair and documenting as you go would be the best path to follow.

D. Use an external USB keyboard
Although an external USB-connected keyboard would provide keyboard input, it wouldn't be a very portable or convenient solution. The best keyboard for a laptop would be the one built-in to the laptop chassis.



More information:

220-1001, Objective 5.5 - Device Disassembly Best Practices
<https://professormesser.link/1001050503>

- B82.** A user in the accounting department is printing to a thermal printer, but the output is completely blank. Which of the following would be the MOST likely reason for this issue?
- A. Printer is out of toner
 - B. Heating element is damaged
 - C. Feed assembly is faulty
 - D. Fuser is not operating

The Answer: B. Heating element is damaged

A thermal printer uses a heating element to change the color of the paper. If the heating element isn't working, then the paper color won't change and the final output will remain blank.

The incorrect answers:

A. Printer is out of toner

A thermal printer uses thermochromic paper to create the printed output, and doesn't use any toner or ink.

C. Feed assembly is faulty

The feed assembly pulls the paper through the printer. If the feed assembly was faulty, the paper would not progress through the printer and would not appear at the exit point.

D. Fuser is not operating

A fuser is used on laser printers to apply heat and pressure to permanently melt toner to the paper. Thermal printers do not use a fuser assembly.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- B83.** A user's desktop computer does not start in the morning when the power button is pressed. A technician notices that the screen remains dark, but fans are spinning inside of the computer case. No messages are displayed and no beeps are heard. Which of the following would be the MOST likely reason for this issue?
- A. Faulty RAM
 - B. No boot drive found
 - C. The CPU is overheating
 - D. Bad power supply

The Answer: D. Bad power supply

A bad power supply can sometimes provide power for some voltages but not others. If the fans are running but no other devices are working, then a bad power supply should be a consideration.

The incorrect answers:

A. Faulty RAM

During POST (Power On Self Test), critical components like CPU (Central Processing Unit) and RAM (Random Access Memory) are tested. If the test fails, the system will beep and a message may appear on the screen. In this example, no messages are shown and there are no beep codes to signify a memory issue.

B. No boot drive found

A missing boot drive would display a message on the screen such as, "Default Boot Device Missing," or similar information.

C. The CPU is overheating

This system is starting up in the morning, so there's no opportunity for the CPU to become overheated. It would take a few minutes of operation for a faulty cooling system to cause the CPU to become too hot and shut down.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- B84.** A user in the shipping department needs a charging cable for their Android phone. Which of the following connectors would be the MOST likely to work on this phone?
- A. USB-C
 - B. Lightning
 - C. RJ45
 - D. Thunderbolt

The Answer: A. USB-C

Android devices commonly used the USB standard for connectivity, and USB-C is a common standard for many devices.

The incorrect answers:

B. Lightning

Lightning connectors are proprietary to Apple. You'll see lightning connections used exclusively on iOS devices.

C. RJ45

RJ45 (Registered Jack 45) is a standard connector type most commonly seen on Ethernet network cables. RJ45 would not commonly be used on mobile phones.

D. Thunderbolt

Thunderbolt connectors are common on desktop computers, but the Thunderbolt technology isn't used on smartphone connectors.



More information:

220-1001, Objective 1.7 - Mobile Device Synchronization

<https://professormesser.link/1001010701>

- B85.** A system administrator has installed a KVM switch in a data center. When connecting to one of the remote devices, the keyboard works properly but the mouse does not move. Which of the following should be the **FIRST** step when troubleshooting this issue?
- A. Replace the KVM mouse
 - B. Check the keyboard and mouse connectors
 - C. Replace the KVM keyboard
 - D. Replace the KVM unit
 - E. Replace the remote device mouse

The Answer: B. Check the keyboard and mouse connectors

A KVM (Keyboard-Video-Mouse) switch allows a single keyboard, video display, and mouse, to be used across multiple devices. The KVM switch will physically connect to the keyboard, video, and mouse interfaces on other computers, and a control on the KVM switch can be used to move between devices. If a keyboard or mouse connection isn't working, the first troubleshooting step is to confirm that the KVM switch is properly connected to the remote device.

The incorrect answers:

A. Replace the KVM mouse

Before replacing any hardware, it's useful to know if the issue is related to connectivity. If it was confirmed that the mouse was not working on any system, then replacing the hardware would be appropriate.

C. Replace the KVM keyboard

As with the KVM mouse, the keyboard connectivity should also be checked before replacing any hardware.

D. Replace the KVM unit

Before replacing the entire KVM switch, additional checks for cable connections and connectivity to other devices should be confirmed.

E. Replace the remote device mouse

In many cases, the KVM switch has already replaced the mouse on the remote device, but if there was a second mouse on the remote device it wouldn't have prevented the mouse on the KVM switch from working.



More information:

220-1001, Objective 3.6 - Peripherals

<https://professormesser.link/1001030601>

- B86.** A workstation administrator has been asked to troubleshoot an issue with Internet connectivity on a laptop computer. The network status in the taskbar shows a yellow exclamation mark with the message “No Internet access.” When examining the Ethernet connection on the laptop, the cable sheath is an inch short and individual copper wires are visibly disconnected from the RJ45 connector. Which of the following should be used to correct this issue?
- A. Crimper
 - B. Punch-down tool
 - C. Loopback plug
 - D. Multimeter

The Answer: A. Crimper

A crimper is used to attach modular connectors to the end of cables. In this example, the cable would be cut back past the missing cable sheath and the wires would be attached to a new connector using an RJ45 crimper.

The incorrect answers:

B. Punch-down tool

Punch-down tools are used to reconnect wires, but only to punch-down blocks such as 66 blocks or 110 blocks. For device connections, a crimper is the only way to attach a new RJ45 connector.

C. Loopback plug

A loopback plug is used to test the physical interface of a device when troubleshooting. A loopback plug isn't used to repair or replace the RJ45 connector on a cable.

D. Multimeter

Multimeters can be used to check voltage levels and continuity, but they're not very useful when an RJ45 connector needs to be replaced.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

- B87.** A network administrator needs to connect two sites together that are located on opposite sides of the city. Which of these network connections would be the MOST appropriate?
- A. MAN
 - B. PAN
 - C. LAN
 - D. WAN

The Answer: A. MAN

A MAN (Metropolitan Area Network) connects locations that are in the same city or metropolitan area. Once the distance is outside the scope of the immediate metro area, the connection is categorized as a WAN (Wide Area Network).

The incorrect answers:

B. PAN

A PAN (Personal Area Network) describes the connection between our mobile devices and other accessories. For example, the wireless connection between a mobile phone and a headset would be categorized as a PAN.

C. LAN

A LAN (Local Area Network) is the network in the immediate area. The network at home or work is best described as a LAN.

D. WAN

A WAN (Wide Area Network) can describe a network connection between cities, states, or countries. Communication over long distances is often generically categorized as a WAN.



More information:

220-1001, Objective 2.7 - Network Types

<https://professormesser.link/1001020702>

- B88.** Which of the following would be the BEST way to remove toner and paper dust from the inside of a laser printer?
- A. Use a chemical cleaner that removes toner particles
 - B. Run a cleaning page through the printer
 - C. Wipe the inside with a damp cloth
 - D. Use compressed air to blow out the particles

The Answer: C. Wipe the inside with a damp cloth

There can be a significant amount of dust and toner particles inside of a laser printer, and using a normal vacuum cleaner or compressed air would release the particles into the air and the static discharge would potentially damage the printer. Instead, a damp cloth will capture the toner and dust without causing more issues in the immediate area.

The incorrect answers:

A. Use a chemical cleaner that removes toner particles

Unused toner is not difficult to remove, so a chemical cleaner is both unnecessary and potentially damaging to the printer. A damp cloth with cold water will pick up the toner without melting it or releasing it into the air.

B. Run a cleaning page through the printer

Cleaning pages are useful for thermal printers, but they won't pick up loose toner particles or dust from inside of a laser printer.

D. Use compressed air to blow out the particles

As mentioned above, compressed air will spread toner and dust around the area and make it very difficult to remove. Instead, a damp cloth from cold water will easily and quickly pick up the loose toner and dust.



More information:

220-1001, Objective 3.11 - Laser Printer Maintenance

<https://professormesser.link/1001031102>

- B89.** A system administrator is connecting a remote site to the Internet over a single pair of copper cabling. Which of the following is the administrator using for this installation?
- A. PoE switch
 - B. Hub
 - C. DSL modem
 - D. Repeater

The Answer: C. DSL modem

DSL (Digital Subscriber Line) Internet connections use the same single copper pair of wires that are traditionally used by POTS (Plain Old Telephone Service) lines. DSL modems connect to this pair of wires and convert the signal to an Ethernet connection that can be used by other devices.

The incorrect answers:

A. PoE switch

PoE (Power over Ethernet) switches commonly use all four pair of twisted pair wires with an RJ45 connector.

B. Hub

Hubs were used in older networks to connect Ethernet devices, but most networks use the more efficient switches. Hubs are not used as a direct connection to the Internet.

D. Repeater

Repeaters will regenerate signals to extend the overall distance of a network link. Repeaters are not used to connect sites to the Internet.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

- B90.** Which of the following would be MOST associated with a handheld barcode scanner?
- A. 802.11
 - B. Bluetooth
 - C. DVD-RW
 - D. TRS

The Answer: A. 802.11

Handheld barcode scanners are often networked devices using 802.11 wireless connectivity.

The incorrect answers:

B. Bluetooth

Bluetooth network connectivity is useful for local devices, but barcode scanners often need to scan devices in large warehouses and communicate to centralized databases that may be located in a completely different city. Bluetooth does not provide the range or power required for this type of system.

C. DVD-RW

DVD-RW (Digital Versatile Disc - Read Write) is an optical storage medium and is not commonly associated with handheld barcode scanners.

D. TRS

TRS (Tip-Ring-Sleeve) is a type of connector commonly associated with headphone cables. TRS connectors are not usually associated with handheld barcode scanners.



More information:

220-1001, Objective 3.6 - Peripherals

<https://professormesser.link/1001030601>

Practice Exam C

Performance-Based Questions

C1. Match the BEST network technology to the description.
Not all network technologies will be used.

Repeater	Patch panel	Access Point	Firewall
Router	Switch	Cable modem	

<input type="text"/>	Forward traffic over the network based on MAC address
<input type="text"/>	Communicate over wireless frequencies
<input type="text"/>	Control the flow of traffic through the network
<input type="text"/>	Physically connect incoming and outgoing network cables

C2. Match the printer problem to the MOST likely diagnosis.

Fuser is not operational	Scratched photosensitive drum	Drum not cleaning properly
Incorrect page description language	Ink cartridge is low	

<input type="text"/>	Black vertical line runs down the length of the page
<input type="text"/>	The output prints in the wrong color
<input type="text"/>	Toner smears and wipes off the paper
<input type="text"/>	Output shows non-readable garbled characters
<input type="text"/>	A ghost image is printed on the same page as the original

C3. A new employee needs to have email configured on their mobile device. Configure the mobile device based on these configuration parameters provided by the email administrator:

Email configuration for user11@example.com

Email password: 67L\$12h7

Authentication is required for both incoming and outgoing email.

SMTP server: smtp.example.com

SMTP parameters: SSL port 465

IMAP server: imap.example.com

IMAP parameters: SSL port 993

Incoming mail setup	
Enable:	<input type="checkbox"/>
Username:	<input type="text"/>
Password:	<input type="text"/>
Server:	<input type="text"/>
Security:	<input type="radio"/> None <input type="radio"/> SSL/TLS
Port:	<input type="text"/>

Outgoing mail setup	
Enable:	<input type="checkbox"/>
Server:	<input type="text"/>
Port:	<input type="text"/>
Security:	<input type="radio"/> None <input type="radio"/> SSL/TLS
Require sign-in:	<input type="checkbox"/>
Username:	<input type="text"/>
Password:	<input type="text"/>

C4. Match the port number to the description.

tcp/389

tcp/22

tcp/445

tcp/143

tcp/443

tcp/548

tcp/23

Share a folder in Windows

Connect to a console over an insecure connection

Copy a file between macOS desktops

Send data to a web server over an encrypted channel

C5. Which of the following interfaces would be the BEST choice for these descriptions?

DB-9

SAS

Molex

F-connector

Lightning

HDMI

RJ45

Internal SSD storage drive

Router configuration interface

Ethernet network

External video display

Practice Exam C

Multiple Choice Questions

- C6.** A system administrator has been assigned the task of installing an operating system, application, and data onto a cloud-based server. Which of these best describes this scenario?
- A.** Infrastructure as a Service Quick
Answer: **281**
 - B.** Platform as a Service
 - C.** Hybrid Cloud The Details: **289**
 - D.** Software as a Service
- C7.** A network engineer is installing a device that will allow wireless devices to access the wired Ethernet network. Which of the following would BEST describe this technology?
- A.** Hub Quick
Answer: **281**
 - B.** Managed switch
 - C.** VLAN The Details: **290**
 - D.** WAP
- C8.** A systems administrator has added a new video adapter to a desktop computer, installed the latest video driver, and rebooted the system. When the system starts, it continuously reboots before it reaches the login prompt. Which of the following would be the BEST next troubleshooting step?
- A.** Press F8 during startup and choose “Boot from last known working configuration” Quick
Answer: **281**
 - B.** Upgrade the system BIOS using an update file from the motherboard manufacturer The Details: **291**
 - C.** Disconnect all USB storage devices and restart the system
 - D.** Reinstall the operating system

- C9.** A system administrator is configuring a lab computer that will run five server VMs at the same time. Which of the following hardware resources will be the MOST important for this configuration?
- A. CPU
 - B. Storage space
 - C. Video adapter
 - D. NIC
- Quick
Answer: **281**
The Details: **292**
- C10.** A user would like a tablet that can control the television volume and cable box channels at home. Which of the following tablet features would MOST likely be required?
- A. NFC
 - B. Bluetooth
 - C. IR
 - D. Hotspot
- Quick
Answer: **281**
The Details: **293**
- C11.** Which of the following would provide segmentation of broadcast domains on the same physical switch?
- A. VLAN
 - B. DNS
 - C. VPN
 - D. DHCP
- Quick
Answer: **281**
The Details: **294**
- C12.** A user is reporting that every page printed from a networked laser printer appears as garbled graphics and text characters. Which of the following is the MOST likely cause of this issue?
- A. Incorrect printer driver
 - B. Damaged network cable
 - C. Printer is low on memory
 - D. Toner is low
- Quick
Answer: **281**
The Details: **295**

- C13.** During a presentation in a conference room, the lamp in an LCD projector is turning off every five minutes and back on five minutes later. Which of the following would be the MOST likely reason for this issue?
- A. The video cable is faulty Quick
Answer: 281
 - B. The display lamp has failed
 - C. The cooling process is failing The Details: 296
 - D. The display resolution is incorrect
- C14.** A system administrator has just completed a memory upgrade on a database server. When starting the system, this message is displayed: “Boot Device Not Found.” The BIOS configuration does not show any hard drives in the system. Which of the following would be the NEXT best troubleshooting step?
- A. Replace the hard drive Quick
Answer: 281
 - B. Upgrade the BIOS
 - C. Check the hard drive cables The Details: 297
 - D. Modify the BIOS boot sequence
- C15.** If a laptop's inverter is faulty, which of the following would be the MOST likely result?
- A. The battery will not recharge Quick
Answer: 281
 - B. The system will not power on
 - C. The screen will be difficult to see The Details: 298
 - D. The USB interfaces will not be powered
- C16.** What is the most common use for the switch on a computer's power supply?
- A. Sets the input voltage Quick
Answer: 281
 - B. Controls the speed of the CPU
 - C. Sets the cooling fan speed The Details: 299
 - D. Boots from different operating system partitions

C17. Which of these devices would be required to use an 802.1Q trunk?

- A. Router
- B. Repeater
- C. Managed switch
- D. Cable modem

Quick
Answer: **281**

The Details: **300**

C18. Rodney, a user in the manufacturing department, would like to have a local backup of his iPhone data. Which of the following would provide this backup?

- A. Download the phone data from iCloud
- B. Use iTunes to perform a local backup
- C. Connect the iPhone directly to an external storage device
- D. Connect using USB and copy the files from File Manager

Quick
Answer: **281**

The Details: **301**

C19. A network administrator needs to connect Ethernet between two buildings that are located across the parking lot from each other. The total distance between the buildings is approximately 400 meters. Which of the following technologies would be the BEST choice for this installation?

- A. Coax
- B. Category 6A
- C. Fiber
- D. UTP

Quick
Answer: **281**

The Details: **302**

C20. A systems administrator needs to configure a smartphone to retrieve email messages from the corporate mail server. Which of the following protocols could be configured for this purpose? (Pick TWO)

- A. IMAP
- B. AFP
- C. SMTP
- D. LDAP
- E. POP3
- F. SNMP
- G. SMB

Quick
Answer: **281**

The Details: **303**

C21. An administrator would like to maintain an inventory of company-owned smartphones in a central database. Which of the following would allow the administrator to identify a unique physical mobile device?

- A. IP address
- B. IMEI
- C. Phone number
- D. PRL

Quick
Answer: **281**

The Details: **304**

C22. Which of these cloud computing architectures would BEST describe several organizations sharing the same resources?

- A. Community
- B. IaaS
- C. Public
- D. Hybrid

Quick
Answer: **281**

The Details: **305**

C23. What port should be configured in a firewall to block secure terminal communication?

- A. 23
- B. 443
- C. 22
- D. 110

Quick
Answer: **281**

The Details: **306**

- C24.** The cooling fan controller in a server is failing. The server administrator has tested possible reasons for the failures and has created a plan for correcting the issue. Which of the following would be the best NEXT troubleshooting step?
- A.** Verify the fan controller is working properly
 - B.** List possible reasons for the controller failure
 - C.** Present the plan to the change control team
 - D.** Test for full functionality
- Quick Answer: **281**
The Details: **307**
- C25.** A desktop administrator is troubleshooting an LCD display that shows a faint image at the bottom right of the screen. The faint image is displayed even when spreadsheets or browser screens are shown. Which of the following would be the MOST likely reason for this issue?
- A.** Stuck pixels
 - B.** Incorrect resolution
 - C.** Bad video cable
 - D.** Burn-in
- Quick Answer: **281**
The Details: **308**
- C26.** A systems administrator is troubleshooting a laptop that appears to boot normally, but nothing appears on the LCD display. After closer inspection, the administrator notices that text appears on the display but the output is so faint that it's difficult to see anything. What is the MOST likely cause of this issue?
- A.** The video card is faulty
 - B.** The laptop is not receiving enough power
 - C.** The video driver is not configured properly
 - D.** The inverter is faulty
- Quick Answer: **281**
The Details: **309**

- C27.** A network administrator has installed a fifty meter network connection from one side of the building to the other, and now he would like to make sure that the punch-downs and crimps are connected to the correct pins on each side. Which of these tools would be the best way to confirm the wiring map?
- A. Multimeter
 - B. Cable tester
 - C. Toner probe
 - D. Loopback plug
- Quick
Answer: **281**
The Details: **310**
- C28.** Which of these characteristics would be MOST associated with a thin client workstation?
- A. Multiple CPUs
 - B. Specialized GPU
 - C. Network connectivity
 - D. Maximum RAM installed
- Quick
Answer: **281**
The Details: **311**
- C29.** A user in the shipping department would like to connect multiple displays to a desktop computer. Which of the following would support this requirement? (Pick TWO)
- A. RJ45
 - B. Lightning
 - C. Fiber
 - D. HDMI
 - E. DB-9
 - F. DVI-D
- Quick
Answer: **281**
The Details: **312**
- C30.** A user is trying to listen to a playlist on a pair of wireless speakers, but the speakers are not visible from the music app. The user has restarted the smartphone and the speakers, but the problem has not been resolved. Which of the following would be the BEST way to correct this issue?
- A. Restart the smartphone
 - B. Pair the smartphone with the speakers
 - C. Replace the speakers
 - D. Install updated drivers in the smartphone
- Quick
Answer: **281**
The Details: **313**

- C31.** A network administrator has configured a wireless network to use two contiguous 20 MHz bonded channels on the 2.4 GHz band. Which of these wireless standards is in use?
- A. 802.11ac
 - B. 802.11b
 - C. 802.11n
 - D. 802.11g
- Quick
Answer: **281**
The Details: **314**
- C32.** A system administrator has found that other companies in the same office building have been connecting to her private wireless network. Which of the following would limit this access to the wireless network?
- A. Enable WPA2 encryption
 - B. Change the wireless channel
 - C. Assign QoS values
 - D. Configure NAT
- Quick
Answer: **281**
The Details: **315**
- C33.** A network engineer is installing a cable modem at a remote site. Which of these connectors would commonly be found on a cable modem?
- A. BNC
 - B. eSATA
 - C. SCSI
 - D. F-connector
- Quick
Answer: **281**
The Details: **316**
- C34.** A technician has just upgraded the memory on a desktop computer. After the computer runs for a few minutes, the system locks up completely and does not respond to keyboard or mouse input. After rebooting, no error messages are found in Event Viewer. Which of the following would be the BEST next troubleshooting step?
- A. Reinstall the operating system
 - B. Upgrade the BIOS
 - C. Update device drivers
 - D. Run hardware diagnostics
- Quick
Answer: **281**
The Details: **317**

C35. Which of these network types would MOST likely be categorized as a WAN?

- A.** A point-to-point connection to an office in another country
- B.** A fiber connection to a building across a campus
- C.** A connection to a remote office on the other side of town
- D.** A link between a mobile device and an automobile

Quick
Answer: **281**

The Details: **318**

C36. Which of these tools would be the MOST appropriate when working with 110 blocks?

- A.** Loopback plug
- B.** Multimeter
- C.** Crimper
- D.** Punch-down tool

Quick
Answer: **281**

The Details: **319**

C37. A system administrator is configuring the IP address settings on a remote server. Which of these settings would enable the server to communicate with other devices using a fully qualified domain name?

- A.** DHCP
- B.** IP address
- C.** DNS
- D.** Subnet mask

Quick
Answer: **281**

The Details: **320**

C38. Which of the following devices makes forwarding decisions based on destination IP address?

- A.** Repeater
- B.** Router
- C.** Hub
- D.** Managed switch

Quick
Answer: **281**

The Details: **321**

- C39.** A system administrator has been tasked with running an application from one system architecture on a computer running a completely different system architecture. Which of the following would BEST describe this requirement?
- A. Virtualization
 - B. Elevation
 - C. Emulation
 - D. Synchronization
- Quick
Answer: **281**

The Details: **322**
- C40.** A user in the accounting department had a new laptop delivered and installed, but they are reporting that the network throughput seems much slower than the previous computer. Which of the following would be the most likely cause of these slow transfer speeds?
- A. Incorrect SSID
 - B. Device is assigned an APIPA address
 - C. Incorrect gateway configuration
 - D. Duplex mismatch
 - E. Device is assigned an RFC 1918 address
- Quick
Answer: **281**

The Details: **323**
- C41.** A workstation is configured with a video card that outputs DVI-D, but it needs to connect to an LCD projector that requires an HDMI connection. Which of the following would be the BEST way to connect this workstation to the projector?
- A. DVI-D to HDMI adapter
 - B. Digital to analog converter
 - C. VGA to HDMI adapter
 - D. USB to HDMI converter
- Quick
Answer: **281**

The Details: **324**
- C42.** An Android user needs to transfer some presentations from their desktop computer to their smartphone. Which of the following would be the BEST choice?
- A. Lightning
 - B. RJ45
 - C. USB-C
 - D. Thunderbolt
- Quick
Answer: **281**

The Details: **325**

C43. What type of network connection is commonly used by DSL?

- A. Coax
- B. Fiber optic
- C. Line-of-sight
- D. Twisted pair copper

Quick
Answer: **281**

The Details: **326**

C44. A workstation has been configured with a gigabit NIC, RAID array, and a series of hard drives. Which of the following would be the MOST likely use of this workstation?

- A. NAS
- B. CAD/CAM workstation
- C. Gaming PC
- D. Thin client

Quick
Answer: **281**

The Details: **327**

C45. A system administrator has just built a new server with an eight core CPU. When viewing information in Windows Task Manager, the utility shows CPU performance for sixteen different processors. Which of the following would be the MOST likely reason for this output?

- A. Task Manager displays CPU input and output separately
- B. The CPU supports hyper-threading
- C. The BIOS requires an upgrade to support the newer CPU
- D. The CPU is faulty

Quick
Answer: **281**

The Details: **328**

C46. What type of proprietary Apple connector can be plugged in face up or face down?

- A. Lightning
- B. Thunderbolt
- C. FireWire
- D. USB-C

Quick
Answer: **281**

The Details: **329**

C47. Which of the following best describes elasticity in cloud computing?

- A.** A cloud-based application framework is used to build more complex apps Quick
Answer: **281**
- B.** The cloud operates in an internal virtualized data center The Details: **330**
- C.** All cloud storage is managed from a central pool
- D.** The cloud resources can scale up as needed

C48. A network administrator has been asked to control network access to destination websites based on the URL. Which of the following would provide this functionality?

- A.** QoS Quick
Answer: **281**
- B.** Whitelisting
- C.** NAT The Details: **331**
- D.** MAC filtering

C49. Which of the following would be MOST commonly associated with a KVM switch?

- A.** DB-9 Quick
Answer: **281**
- B.** 802.11
- C.** VGA The Details: **332**
- D.** BNC

C50. A user has reported that they can't browse to Google's search page at <https://www.google.com>. The workstation IP address is 192.168.1.5, the subnet mask is 255.255.255.0, the default gateway is 192.168.1.1, and the domain name servers are 10.2.2.1 and 10.2.2.2. A technician can successfully ping the local IP address, the default gateway, and Google's DNS server at 8.8.8.8. Which of the following is the most likely cause of this issue?

- A. The Ethernet adapter's duplex setting is incorrect
- B. The default gateway is faulty
- C. The Internet connection is down
- D. The DNS servers are faulty
- E. The client's default gateway configuration is incorrect

Quick
Answer: **281**

The Details: **333**

C51. A user in the facilities department is having an issue printing their complex blueprints to a network laser printer. When they pick up their output, the top half of the blueprint is printed but the bottom half of the page is completely blank. Which of these is the MOST likely cause of this issue?

- A. Network is faulty
- B. Printer is out of memory
- C. The fuser is not operating
- D. Printer is out of toner

Quick
Answer: **281**

The Details: **334**

C52. A user is connecting their laptop to a docking station for the first time, but is not able to see any video output. The USB keyboard and mouse connected to the docking station appear to be working normally. Which of the following should be the NEXT troubleshooting task?

- A. Use the secondary Fn display key
- B. Toggle airplane mode on the laptop
- C. Install an updated video driver
- D. Enable external video output in the laptop BIOS

Quick
Answer: **281**

The Details: **335**

C53. Two computers in a test lab are used to transfer files to each other over a wireless network, but the test lab does not have an access point. Which of the following would best describe this connection?

- A. WPA2 mode
- B. Ad hoc mode
- C. SSID mode
- D. Infrastructure mode

Quick
Answer: **281**

The Details: **336**

C54. A Windows computer is configured to obtain an IP address automatically. Which of the following would occur if the automatic assignment process was not working?

- A. The IP address would be set to 0.0.0.0
- B. A link-local address would be assigned
- C. The Ethernet adapter would be disabled
- D. The last known good IP address would be used

Quick
Answer: **281**

The Details: **337**

C55. A web server administrator has received a notification that disk 1 in a RAID 5 array has failed. Which of the following would be the BEST next step to resolve this drive failure?

- A. Replace disk 1 and restore from backup
- B. Replace all drives and restore from backup
- C. Replace all drives and rebuild the array
- D. Replace disk 1 and rebuild the array

Quick
Answer: **281**

The Details: **338**

C56. IoT devices can build connections between each other to increase the overall network communication distance. Which of the following would best describe this type of network?

- A. PAN
- B. LAN
- C. WMN
- D. MAN

Quick
Answer: **281**

The Details: **339**

- C57.** A user in the accounting department is reporting that all of the printed pages from a networked laser printer are completely blank. Nothing appears to be written on any of the printed pages. Which of the following would be the MOST likely cause of this issue?
- A. Fuser is faulty
 - B. Print drivers are incorrect
 - C. Printer out of memory
 - D. Toner cartridge is faulty
- Quick
Answer: **281**
The Details: **340**
- C58.** A systems administrator has just installed a new server in a data center. When pressing the power button, there's no response from the server, no lights appear on the front display, and no fans are spinning. Which of the following would be the MOST likely reason for this issue?
- A. An operating system is not installed on the server
 - B. The power supply switch is set to the wrong input voltage
 - C. The BIOS needs to be upgraded
 - D. The keyboard and mouse are not connected
- Quick
Answer: **281**
The Details: **341**
- C59.** Which of the following services would automatically provide an IP address to any device connected to the network?
- A. DNS
 - B. Proxy
 - C. IPS
 - D. DHCP
- Quick
Answer: **281**
The Details: **342**
- C60.** A quality assurance team is planning to use a single workstation to simultaneously test an application across multiple operating systems. Which of the following components would be MOST important for this workstation?
- A. Enhanced sound card
 - B. Gigabit NIC
 - C. Dual monitors
 - D. Maximum RAM
- Quick
Answer: **281**
The Details: **343**

C61. A computer lab is purchasing supplies for their 3D printers. Which of the following should be included on this order?

- A. Toner cartridge
- B. Ink ribbon
- C. Plastic filament
- D. Ink cartridge

Quick
Answer: **281**

The Details: **344**

C62. A network administrator has configured a system to operate in infrastructure mode. Which of the following would BEST describe this mode?

- A. The wireless network communicates through an access point
- B. The BIOS settings cannot be changed without an administrator password
- C. No changes can be made to the operating system files
- D. All file shares are stored on a central NAS

Quick
Answer: **281**

The Details: **345**

C63. A server administrator is building a web server with three hard disk drives. The storage for the server requires the fastest possible access and redundancy is not a primary requirement. Which of the following would be the BEST choice for this server?

- A. RAID 10
- B. RAID 1
- C. RAID 0
- D. RAID 5

Quick
Answer: **281**

The Details: **346**

C64. A network engineer is troubleshooting the connection of a tablet to a cellular provider's network. Which of these would BEST describe this network connection?

- A. Integrated Services Digital Network
- B. Long Term Evolution
- C. Media Access Control
- D. Near Field Communication

Quick
Answer: **281**

The Details: **347**

- C65.** A developer has requested a server for testing a new application. To complete this request, the system administrator logs into his cloud console and allocates a new server configuration. Which of the following describes this process?
- A. Metered
 - B. Resource pooling
 - C. Measured
 - D. On-demand
- Quick
Answer: **281**
The Details: **348**
- C66.** A user is complaining that their laptop keyboard is displaying numbers when letter keys are pressed. When you look at the laptop, you confirm that pressing some of the letters on the keyboard shows numbers on the screen. What is the MOST likely cause of this problem?
- A. Windows has remapped the keyboard layout
 - B. The secondary function key has enabled NumLock
 - C. The Caps Lock key is enabled
 - D. The laptop's keyboard is faulty
- Quick
Answer: **281**
The Details: **349**
- C67.** Which of the following would be commonly used to connect a chip reader to a point of sale terminal?
- A. TRS
 - B. BNC
 - C. VGA
 - D. USB
- Quick
Answer: **281**
The Details: **350**
- C68.** A server administrator has recently upgraded the CPU in one of his database servers, and he has also installed a new heat sink and a CPU fan. Unfortunately, the computer is now powering down after ten minutes of normal use. Which of the following is the MOST likely reason for this issue?
- A. Insufficient thermal paste
 - B. Overloaded power supply
 - C. The OS is out of memory
 - D. Incorrect BIOS configuration
- Quick
Answer: **281**
The Details: **351**

- C69.** Which of the following technologies performs BEST when reading a text-based document in direct sunlight?
- A. Tablet Quick
Answer: 281
 - B. Smart phone
 - C. e-Reader The Details: 352
 - D. Augmented reality glasses
- C70.** The mouse on a desktop computer has stopped operating. Which of the following would be the best NEXT troubleshooting step?
- A. Replace the mouse Quick
Answer: 281
 - B. View Device Manager
 - C. Reinstall the mouse driver The Details: 353
 - D. Move the mouse to a different USB interface
- C71.** A network administrator is viewing the interface statistics on a WAN router and has noticed that error rates are increasing. The administrator has replaced the WAN cables, but the errors continue. Which of the following tools should be used to BEST troubleshoot this issue?
- A. Loopback plug Quick
Answer: 281
 - B. Toner probe
 - C. Multimeter The Details: 354
 - D. Cable tester
- C72.** Which part of the laser printing process requires extensive use of printer memory?
- A. Processing Quick
Answer: 281
 - B. Fusing
 - C. Transferring The Details: 355
 - D. Exposing

- C73.** An administrator is trying to print some customer letters on company letterhead, but the multi-tray laser printer is printing everything on plain paper. Which of the following is the MOST likely cause of this issue?
- A. Print spooler has crashed Quick
Answer: **281**
 - B. Printer hardware is faulty
 - C. Tray selection in the printer driver is incorrect The Details: **356**
 - D. Printer does not support printing on letterhead
- C74.** Walter, a hardware technician, has been asked to purchase a system that will be used as a database server. One of the specifications for the server requires the system to detect and correct memory errors during operation. Which of the following would be the BEST option for this project?
- A. Parity memory Quick
Answer: **281**
 - B. Single channel
 - C. ECC The Details: **357**
 - D. SO-DIMM
- C75.** A system administrator is replacing a cracked LCD display on a Windows laptop. Which of the following would be the MOST important component to test after this replacement?
- A. Trackpad Quick
Answer: **281**
 - B. Wireless network
 - C. USB devices The Details: **358**
 - D. Primary storage drive
- C76.** Which of the following would be MOST associated with M.2?
- A. HDD Quick
Answer: **281**
 - B. Hybrid
 - C. RAID The Details: **359**
 - D. SSD

C77. A user in the accounting department is reporting that her smartwatch is not synchronizing with her mobile phone. The phone is powered on and unlocked, but the phone does not show the smartwatch in a list of available devices. Which of the following would MOST likely solve this issue?

- A.** Enable NFC on the mobile phone Quick
Answer: **281**
- B.** Disable Wi-Fi on the mobile phone
- C.** Enable Bluetooth on the mobile phone The Details: **360**
- D.** Restart the phone and smartwatch

C78. A computer used for testing high-resolution gaming displays has a high-end video adapter and DisplayPort video connection. The computer works properly for word processing and spreadsheets, but it powers down after only a few minutes of graphics testing. Which of the following would be the MOST likely reason for this issue?

- A.** The storage drive is not fast enough for the testing application Quick
Answer: **281**
- B.** The CPU fan is faulty The Details: **361**
- C.** The video display is not properly connected
- D.** One of the memory modules is faulty

C79. A network administrator has created a configuration that provides a server with the same IP address each time the server is started. Which of the following would BEST describe this configuration?

- A.** Link-local address Quick
Answer: **281**
- B.** IP reservation
- C.** Default gateway The Details: **362**
- D.** APIPA

C80. Which of the following BEST describes a hypervisor?

- A.** Manages the resources required for virtualization Quick
Answer: **281**
- B.** Increases the overall CPU efficiency of a computer
- C.** Improves the throughput of network communication The Details: **363**
- D.** Prevents malware from executing in secure areas of memory
- E.** Caches CPU transactions to provide an overall faster response time

C81. A network technician is installing a new copper gigabit Ethernet connection, but when they plug in the network cable the status light indicators are dark. Which of the following would be the MOST likely status of the network connection?

- A.** The DHCP server has not assigned an IP address
- B.** There is no signal on the Ethernet cable Quick
Answer: **281**
- C.** The Ethernet link is running at 100 megabits per second instead of 1 gigabit per second The Details: **364**
- D.** The primary DNS server is not responding

C82. A finance manager is printing a contract that is designed to be printed on both sides of the page, but the printer is only providing output on one side of the paper. Which of the following options would resolve this issue?

- A.** Collate Quick
Answer: **281**
- B.** Caching
- C.** Orientation The Details: **365**
- D.** Duplex

- C83.** A technician is troubleshooting a mobile phone that turns off after about an hour of normal use. Before powering off, the phone displays the message, “High temperature detected.” The phone is used inside the building at room temperature, and is not used in direct sunlight. Which of the following would be the MOST likely reason for this issue?
- A. An app is using a large amount of CPU
 - B. The Wi-Fi network is overloaded
 - C. The battery has low voltage
 - D. The mobile phone has an invalid certificate
- Quick
Answer: **281**
The Details: **366**
- C84.** The help desk has received a ticket that a desktop computer is reporting slow performance. The hard drive access LEDs are continuously lit, and it takes sixty seconds to load a file that previously took five seconds. The CPU and memory utilization statistics show minimal resource use. Which of the following would be the BEST next step?
- A. Upgrade the RAM
 - B. Replace the hard drive
 - C. Upgrade the BIOS
 - D. Boot to Safe Mode
 - E. Upgrade the power supply
- Quick
Answer: **281**
The Details: **367**
- C85.** A user in the marketing department was using their computer to send some email messages. The computer made an unexpected loud pop and immediately powered down. The computer would not respond to additional attempts to power it back on. Which of the following would be the MOST likely cause of this issue?
- A. Incorrect video refresh rate
 - B. Faulty capacitor
 - C. Incomplete software update
 - D. Bad memory module
- Quick
Answer: **281**
The Details: **368**

C86. A manager in the shipping department needs to connect their laptop to wireless portable speakers while in the office. Which of these should be configured on their laptop?

- A. Tethering
- B. Bluetooth
- C. NFC
- D. IR

Quick
Answer: **281**

The Details: **369**

C87. A technician has two hard disk drives that need to be configured redundantly, and all information should be duplicated across physical drives. Which of the following should be configured?

- A. RAID 5
- B. RAID 1
- C. Dynamic disks
- D. RAID 0

Quick
Answer: **281**

The Details: **370**

C88. A system administrator has connected a desktop computer to a new LCD monitor. After connecting the monitor, all of the desktop icons and windows appear oversized and larger than usual. Which of the following would be the BEST way to correct this issue?

- A. Modify the display resolution
- B. Use a different LCD display
- C. Replace the monitor cable
- D. Restart the desktop computer

Quick
Answer: **281**

The Details: **371**

C89. A company is developing a product that will monitor a user's heart rate and sleep patterns. Which category BEST fits this type of product?

- A. Augmented reality
- B. Tablet
- C. Smart phone
- D. Wearable

Quick
Answer: **281**

The Details: **372**

C90. A system administrator is installing a new LCD projector in the company conference room. Which of the following would MOST likely be used with this projector?

- A. Lightning
- B. UTP
- C. Coaxial
- D. HDMI

Quick
Answer: **281**

The Details: **373**

Practice Exam C

Multiple Choice Quick Answers

C6. A	C36. D	C66. B
C7. D	C37. C	C67. D
C8. A	C38. B	C68. A
C9. B	C39. C	C69. C
C10. C	C40. D	C70. B
C11. A	C41. A	C71. A
C12. A	C42. C	C72. A
C13. C	C43. D	C73. C
C14. C	C44. A	C74. C
C15. C	C45. B	C75. B
C16. A	C46. A	C76. D
C17. C	C47. D	C77. C
C18. B	C48. B	C78. B
C19. C	C49. C	C79. B
C20. A and E	C50. D	C80. A
C21. B	C51. B	C81. B
C22. A	C52. A	C82. D
C23. C	C53. B	C83. A
C24. C	C54. B	C84. B
C25. D	C55. D	C85. B
C26. D	C56. C	C86. B
C27. B	C57. D	C87. B
C28. C	C58. B	C88. A
C29. D and F	C59. D	C89. D
C30. B	C60. D	C90. D
C31. C	C61. C	
C32. A	C62. A	
C33. D	C63. C	
C34. D	C64. B	
C35. A	C65. D	

Practice Exam C

Detailed Answers

C1. Match the BEST network technology to the description.
Not all network technologies will be used.

Switch

Forward traffic over the network based on MAC address

A switch makes all forwarding decisions based on the destination MAC address in the Ethernet frame.

Access Point

Communicate over wireless frequencies

An access point provides a bridge between a wired Ethernet network and an 802.11 wireless network.

Firewall

Control the flow of traffic through the network

Although a switch or router can be configured with certain traffic control features, the best selection from the available list is a network firewall.

Patch panel

Physically connect incoming and outgoing network cables

A patch panel is commonly used to terminate connections between network runs.

Unused answers:

A repeater is used to regenerate a network signal, and it's commonly used over very long runs to extend the overall length of a connection.

Routers make forwarding decisions based on the destination IP address in the IP header of a packet.

Cable modems are often all-in-one devices that terminate a cable modem Internet link, provide routing to a private internal network, and connect multiple internal devices with a built-in switch.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

C2. Match the printer problem to the **MOST** likely diagnosis.

**Scratched
photosensitive drum**

Black vertical line runs down the length of the page

The drum on a laser printer is a critical part of the printing process, and a scratch around the drum will appear as a line down the entire length of the printed page. On an inkjet printer, a clogged or dirty print head or cartridge could also cause a vertical line.

**Ink cartridge
is low**

The output prints in the wrong color

An color inkjet printer commonly uses a combination of colors to create the final color output. These colors are often referenced as CMYK (Cyan, Magenta, Yellow, Key or black). If any of these base colors are out of balance with the others, the final mix on the page will not appear with the correct coloring.

**Fuser is not
operational**

Toner smears and wipes off the paper

On a laser printer, the fuser is responsible for applying heat and pressure to melt the toner particles to the page. If the fuser is not operational, then the toner will not be permanently bonded to the paper.

**Incorrect page
description language**

Output shows non-readable garbled characters

It's important that the printing device and the printer are communicating with the same page description language (PCL). If the languages are configured differently, the printed output can appear as garbled text and graphics characters.

**Drum not
cleaning properly**

A ghost image is printed on the same page as the original

The drum in a laser printer will rotate many times to print a single page. If the cleaning process isn't working properly, then a "ghost" image of the previous page contents may appear on the final output.



More information:

220-1001, Section 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

C3. A new employee needs to have email configured on their mobile device. Configure the mobile device based on these configuration parameters provided by the email administrator:

Email configuration for user11@example.com

Email password: 67L\$12h7

Authentication is required for both incoming and outgoing email.

SMTP server: smtp.example.com

SMTP parameters: SSL port 465

IMAP server: imap.example.com

IMAP parameters: SSL port 993

Incoming mail setup	
Enable:	<input checked="" type="checkbox"/>
Username:	<input type="text" value="user11@example.com"/>
Password:	<input type="text" value="67L\$12h7"/>
Server:	<input type="text" value="imap.example.com"/>
Security:	<input type="text" value="SSL/TLS"/>
Port:	<input type="text" value="993"/>

Outgoing mail setup	
Enable:	<input checked="" type="checkbox"/>
Server:	<input type="text" value="smtp.example.com"/>
Port:	<input type="text" value="465"/>
Security:	<input type="text" value="SSL/TLS"/>
Require sign-in:	<input checked="" type="checkbox"/>
Username:	<input type="text" value="user11@example.com"/>
Password:	<input type="text" value="67L\$12h7"/>

The incoming mail will use IMAP (Internet Message Access Protocol) as the primary protocol, and the username, password, and server information should be added to the incoming mail setup page. The incoming mail should be configured to use SSL/TLS over port 993.

The outgoing mail will use SMTP (Simple Mail Transfer Protocol) and should be configured to use SSL/TLS over port 465. The SMTP configuration requires an additional configuration option to require authentication, and the same username and password will be used.



More information:

220-1001, Section 1.6 - Configuring Email on Mobile Devices

<https://professormesser.link/1001010602>

C4. Match the port number to the description.

SAS

Internal SSD storage drive

SAS (Serial Attached SCSI) is a high-speed storage connection that is commonly associated with large storage servers or data center storage facilities.

DB-9

Router configuration interface

If you're a field technician, then you'll almost certainly have a serial cable with a DB-9 (D-subminiature size B, 9 pin) connection for direct configuration of routers, switches, and other infrastructure devices.

RJ45

Ethernet network

The RJ45 connection is the standard connector for Ethernet networking over copper cabling.

HDMI

External video display

An HDMI (High-Definition Multimedia Interface) connection is a widely used video display connection that is used across many different consumer and professional devices.

Unused answers:

Molex connectors are four-pin power plugs that are primarily used for components on the inside of a computer case.

F-connectors are the threaded connectors commonly used on cable television and cable modem coax cables.

Lightning connectors are the proprietary 8-pin connectors used on mobile devices manufactured by Apple, Inc.



More information:

220-1001, Section 3.1 - Cables and Adapters,
and 3.2 - Connectors

<https://professormesser.link/2201001>

C5. Which of the following interfaces would be the BEST choice for these descriptions?

tcp/445

Share a folder in Windows

Microsoft Windows uses the SMB (Server Message Block) protocol to transfer files and print jobs between Windows devices. The SMB protocol communicates directly between Windows systems using TCP port 445.

tcp/23

Connect to a console over an insecure connection

Communicating to a command line console on a remote system is commonly performed over tcp/22 using the SSH (Secure Shell) protocol, but older systems may not support the encryption required by SSH. In those cases, the Telnet protocol can provide in-the-clear communication over TCP port 23.

tcp/548

Copy a file between macOS desktops

As we saw above, The Windows operating system uses SMB for file sharing. The macOS operating system uses a similar protocol called AFP (Apple Filing Protocol), and the communication for AFP uses TCP port 548.

tcp/443

Send data to a web server over an encrypted channel

Encrypted web server communication is an important feature for most sites. The HTTPS (Hypertext Transfer Protocol Secure) protocol encrypts all of the data between the user's browser and the web service over TCP port 443.

Unused answers:

As mentioned above, tcp/22 is commonly used for encrypted SSH console sessions.

TCP port 143 is the preferred port number for retrieving email messages using IMAP (Internet Message Access Protocol).

LDAP (Lightweight Directory Access protocol) uses port tcp/389 for directly lookups and authentication requests.



More information:

220-1001, Objective 2.1 - Common Network Ports

<https://professormesser.link/1001020102>

- C6.** A system administrator has been assigned the task of installing an operating system, application, and data onto a cloud-based server. Which of these best describes this scenario?
- A.** Infrastructure as a Service
 - B.** Platform as a Service
 - C.** Hybrid Cloud
 - D.** Software as a Service

The Answer: A. Infrastructure as a Service

IaaS (Infrastructure as a Service) provides the CPU, memory, storage, and other infrastructure components necessary for the installation of an operating system and application.

The incorrect answers:

B. Platform as a Service

PaaS (Platform as a Service) is a cloud deployment model that provides a modular development platform. Users can create their own applications based on the hosted modules available from a PaaS deployment.

C. Hybrid Cloud

The combination of both public and private cloud deployments results in a hybrid model. This model allows organizations to provide both public services to their customers and private services to use internally.

D. Software as a Service

Software as a Service is a cloud deployment model that provides on-demand software. The user is not responsible for hosting, development, or ongoing management of a SaaS-based deployment.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- C7. A network engineer is installing a device that will allow wireless devices to access the wired Ethernet network. Which of the following would BEST describe this technology?
- A. Hub
 - B. Managed switch
 - C. VLAN
 - D. WAP

The Answer: D. WAP

A WAP (Wireless Access Point) is a device that bridges the 802.11 wireless network together with a wired Ethernet network. Since the WAP is acting as a bridge, it's making forwarding decisions based on the destination MAC address of the network frame.

The incorrect answers:

A. Hub

A hub is designed to connect many Ethernet devices together, but a hub does not include any technology that would allow devices to directly access a wireless network.

B. Managed switch

A managed switch provides connectivity for wired Ethernet devices, and some of the more advanced features of the managed switch allow for additional network configurations and monitoring options. However, a managed switch does not provide access to a wireless network.

C. VLAN

One of the features of a managed switch is the ability to assign interfaces to VLANs (Virtual Local Area Networks). VLANs provide a way to logically separate devices on the same physical switch, but they don't provide any access to wireless networks.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

- C8.** A systems administrator has added a new video adapter to a desktop computer, installed the latest video driver, and rebooted the system. When the system starts, it continuously reboots before it reaches the login prompt. Which of the following would be the BEST next troubleshooting step?
- A.** Press F8 during startup and choose “Boot from last known working configuration”
 - B.** Upgrade the system BIOS using an update file from the motherboard manufacturer
 - C.** Disconnect all USB storage devices and restart the system
 - D.** Reinstall the operating system

The Answer: **A.** Press F8 during startup and choose “Boot from last known working configuration”

If a recent configuration causes a boot issue, Windows provides a way to restart the operating system using the last known working configuration. Each time Windows successfully boots, it makes a backup of that configuration. If the startup option to "boot from last known working configuration" is selected, that working backup is used instead of the current Windows configuration. This can help resolve reboot issues like those detailed in this question.

The incorrect answers:

B. Upgrade the system BIOS using an update file from the motherboard manufacturer

There's nothing in this question that would indicate that the BIOS is causing any issues with the computer.

C. Disconnect all USB storage devices and restart the system

If Windows tries to boot from a USB storage device and a problem occurs, an error message will be provided on the screen. The computer does not continue to reboot when attempting to boot from a USB storage device.

D. Reinstall the operating system

Since the last change to the computer was the video driver upgrade, it would be unnecessary to reinstall the entire operating system.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- C9.** A system administrator is configuring a lab computer that will run five server VMs at the same time. Which of the following hardware resources will be the MOST important for this configuration?
- A. CPU
 - B. Storage space
 - C. Video adapter
 - D. NIC

The Answer: B. Storage space

Adding five virtual machines to a single device would require as much storage space as five separate operating systems. Of the available options, the system storage will be used the most.

The incorrect answers:

A. CPU

The CPU utilizations required by a server can vary, but five servers at low utilizations would not be as much of a resource requirement as the storage space for the VMs (Virtual Machines).

C. Video adapter

Servers don't often require extensive video resources, and some servers don't even use a graphical interface. Given what we know in this question, the video adapter resources are not going to be a large resource requirement.

D. NIC

The NIC (Network Interface Card) provides the network connectivity for the virtual machines. Multiple VMs can use the same physical NIC, so most environments won't need any additional physical network interfaces.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

- C10.** A user would like a tablet that can control the television volume and cable box channels at home. Which of the following tablet features would MOST likely be required?
- A. NFC
 - B. Bluetooth
 - C. IR
 - D. Hotspot

The Answer: C. IR

IR (Infrared) communication is a line-of-sight connection that is commonly used for low-bandwidth applications over a relatively short distance. Infrared is commonly used to control televisions and other home entertainment systems.

The incorrect answers:

A. NFC

NFC (Near Field Communication) is designed to send small amounts of data over a short distance. NFC is commonly used in smart phones and smart watches as a method of payment at a credit card terminal.

B. Bluetooth

Bluetooth is a useful high speed network to use over a relatively short distance, such as a single room. Bluetooth is not commonly used to control home entertainment systems.

D. Hotspot

Hotspots are a method of wirelessly connecting multiple devices through a single Internet-connected device. It's common to use smartphones and dedicated hotspot hardware to provide this connectivity.



More information:

220-1001, Objective 1.5 - Mobile Device Connections
<https://professormesser.link/1001010501>

- C11.** Which of the following would provide segmentation of broadcast domains on the same physical switch?
- A. VLAN
 - B. DNS
 - C. VPN
 - D. DHCP

The Answer: A. VLAN

A VLAN (Virtual Local Area Network) is used to segment interfaces on a single switch or across multiple switches. This allows a network administrator to separate networks on a single switch instead of installing multiple physical switches.

The incorrect answers:

B. DNS

DNS (Domain Name System) is commonly used to translate between fully qualified domain names (FQDNs) and IP addresses. DNS does not provide a method of network segmentation.

C. VPN

VPN (Virtual Private Networks) are used to securely communicate over an encrypted tunnel across the network. VPNs are commonly used to provide remote access to an organization's network from an insecure network or location.

D. DHCP

DHCP (Dynamic Host Configuration Protocol) is used to automatically assign IP address configurations on network devices. DHCP is not used for network segmentation.



More information:

220-1001, Objective 2.6 - Using IP Addresses

<https://professormesser.link/1001020603>

- C12.** A user is reporting that every page printed from a networked laser printer appears as garbled graphics and text characters. Which of the following is the MOST likely cause of this issue?
- A.** Incorrect printer driver
 - B.** Damaged network cable
 - C.** Printer is low on memory
 - D.** Toner is low

The Answer: **A.** Incorrect printer driver

The printer driver formats the print job into a language that the printer can understand. If the incorrect driver is used, the language sent to the printer may not be interpreted correctly and the output may appear very different than the original document. In extreme cases, the output may appear as readable pages of garbled text and graphics.

The incorrect answers:

B. Damaged network cable

A bad network cable would limit the speed or prevent the transmission of print jobs to the printer. The network frames include error checking, so any data corrupted as it traverses the network would not be accepted by the printer. A bad cable would not cause the final output to be garbled or difficult to read.

C. Printer is low on memory

A printer low on memory would print part of the rendered page. The portion that was rendered would appear normal and would not be garbled or difficult to read.

D. Toner is low

Low toner would cause the output to appear faded. Low toner would not cause the final output to be garbled.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- C13.** During a presentation in a conference room, the lamp in an LCD projector is turning off every five minutes and back on five minutes later. Which of the following would be the MOST likely reason for this issue?
- A. The video cable is faulty
 - B. The display lamp has failed
 - C. The cooling process is failing
 - D. The display resolution is incorrect

The Answer: C. The cooling process is failing

If an LCD (Liquid Crystal Display) projector becomes overheated, it will automatically turn off to protect the bulb and other components. This is similar to the automatic protections found in laptop and desktop computers, and once the system cools down it can be restarted. If the cooling fans are blocked or not working, this process may continue the cycle until the cooling problem is resolved.

The incorrect answers:

A. The video cable is faulty

A bad video cable would display corrupted or missing information on the screen, but it would not cause a projector to power down.

B. The display lamp has failed

If the lamp has failed, then there will be no output from the projector. A bad bulb would not commonly cause the projector to rotate through five-minute use cycles.

D. The display resolution is incorrect

A bad display resolution may show a skewed or non-proportional output on the projected image. A bad display resolution would not cause the projector to power off.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

- C14.** A system administrator has just completed a memory upgrade on a database server. When starting the system, this message is displayed: “Boot Device Not Found.” The BIOS configuration does not show any hard drives in the system. Which of the following would be the NEXT best troubleshooting step?
- A. Replace the hard drive
 - B. Upgrade the BIOS
 - C. Check the hard drive cables
 - D. Modify the BIOS boot sequence

The Answer: C. Check the hard drive cables

A memory upgrade would require work inside of a computer case, and it's very easy to accidentally unseat or disconnect other cables. Since the only change was the memory upgrade, a change to the storage subsystem would not be expected. The most likely cause would be a cable issue.

The incorrect answers:

A. Replace the hard drive

Without knowing the exact reason for the error, a complete hard drive replacement would be premature. Before making such a drastic change, it would be useful to check cables and run diagnostics before determining any hard drive issue.

B. Upgrade the BIOS

An older BIOS (Basic Input Output System) can potentially cause issues with memory upgrades, but those issues would not affect the operation of the hard drive. In this scenario, upgrading the BIOS would not be the first troubleshooting choice, and it probably wouldn't be part of the overall troubleshooting process.

D. Modify the BIOS boot sequence

If one storage device was trying to boot before the hard drive, then modifying the boot sequence would be the correct course of action. In this example, the only change was to the memory and not the boot process.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

- C15.** If a laptop's inverter is faulty, which of the following would be the MOST likely result?
- A. The battery will not recharge
 - B. The system will not power on
 - C. The screen will be difficult to see
 - D. The USB interfaces will not be powered

The Answer: C. The screen will be difficult to see

The inverter is used to convert the DC (Direct Current) power inside of the laptop to AC (Alternating Current). The AC power is then used to power the CCFL (Cold Cathode Florescent Lamp) backlights found in older laptop computers. Without the backlight, it will be very difficult to see the information displayed on an LCD (Liquid Crystal Display) screen.

The incorrect answers:

A. The battery will not recharge

Inverters are not used in the circuit that recharges a laptop battery.

B. The system will not power on

A bad power supply might cause the laptop to stay powered off, but a bad inverter will not affect the power-on process.

D. The USB interfaces will not be powered

The inverter is specific to the backlight power and is not used for powering the USB interfaces.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

C16. What is the most common use for the switch on a computer's power supply?

- A.** Sets the input voltage
- B.** Controls the speed of the CPU
- C.** Sets the cooling fan speed
- D.** Boots from different operating system partitions

The Answer: **A.** Sets the input voltage

The input voltage to a power supply should match the capabilities of the power supply unit. Many power supply units are auto-switching, and they will automatically adjust between 120 volts and 240 volts based on the input voltage. Alternatively, some power supply units have a switch that must be manually set to specify input voltage.

The incorrect answers:

B. Controls the speed of the CPU

The speed of the CPU (Central Processing Unit) is controlled from the BIOS (Basic Input Output System). The CPU speed would not be based on a power supply switch.

C. Sets the cooling fan speed

The cooling fan speeds are often managed from a fan controller on the motherboard. Fan speeds are not configured from the power supply.

D. Boots from different operating system partitions

The boot manager of a computer determines which operating system will start during the booting process. The boot partition is not configured from the power supply.



More information:

220-1001, Objective 3.7 - Computer Power

<https://professormesser.link/1001030701>

C17. Which of these devices would be required to use an 802.1Q trunk?

- A. Router
- B. Repeater
- C. Managed switch
- D. Cable modem

The Answer: C. Managed switch

A managed switch includes features not found in an unmanaged switch, such as traffic prioritization, redundancy support, remote management, and VLAN (Virtual Local Area Network) support for connectivity to other switches via 802.1Q.

The incorrect answers:

A. Router

A router does not connect to other routers with 802.1Q trunks.

B. Repeater

Repeaters are relatively straightforward devices that do not have complex connectivity requirements to other devices.

D. Cable modem

Cable modems are designed to convert signals from coax cable networks to Ethernet. Cable modems do not interconnect VLANs with other switches using 802.1Q.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

- C18.** Rodney, a user in the manufacturing department, would like to have a local backup of his iPhone data. Which of the following would provide this backup?
- A. Download the phone data from iCloud
 - B. Use iTunes to perform a local backup
 - C. Connect the iPhone directly to an external storage device
 - D. Connect using USB and copy the files from File Manager

The Answer: B. Use iTunes to perform a local backup

Apple's iTunes application can be used to manage iOS devices, and it also includes a backup and restore feature. Backups can be performed over a wireless connection or from a directly connected iOS device.

The incorrect answers:

A. Download the phone data from iCloud

iCloud provides a backup process for iOS devices, but it doesn't provide direct access to this backup information. Information such as pictures and contact information is available online, but the full backup is not available from iCloud.

C. Connect the iPhone directly to an external storage device

Although some iOS devices support copying information to an external storage device, a full backup cannot be completed by connecting to an external storage device.

D. Connect using USB and copy the files from File Manager

iOS devices will not appear as a drive in Windows File Manager.



More information:

220-1001, Objective 1.7 - Mobile Device Synchronization

<https://professormesser.link/1001010701>

- C19.** A network administrator needs to connect Ethernet between two buildings that are located across the parking lot from each other. The total distance between the buildings is approximately 400 meters. Which of the following technologies would be the BEST choice for this installation?
- A. Coax
 - B. Category 6A
 - C. Fiber
 - D. UTP

The Answer: C. Fiber

Fiber optic communication can extend over very long distances using light instead of radio frequencies. Since the maximum supported distance of most Ethernet connections using copper are one hundred meters, any type of connection that needs additional distance would be a good candidate for fiber optic cabling.

The incorrect answers:

A. Coax

Copper coaxial cabling has similar Ethernet distance limitations to twisted-pair copper cabling. Fiber optics allows the signal to extend well beyond the limitations of copper.

B. Category 6A

Category 6A (Augmented) is a specification of twisted pair copper cabling, and the longest supported distance of Ethernet over Category 6A is one hundred meters.

D. UTP

UTP (Unshielded Twisted Pair) cabling can support up to one hundred meters of Ethernet signal, but fiber optics can extend well beyond this limitation.



More information:

220-1001, Objective 3.1 - Fiber Network Cables

<https://professormesser.link/1001030102>

C20. A systems administrator needs to configure a smartphone to retrieve email messages from the corporate mail server. Which of the following protocols could be configured for this purpose? (Pick TWO)

- A. IMAP
- B. AFP
- C. SMTP
- D. LDAP
- E. POP3
- F. SNMP
- G. SMB

The Answer: A. IMAP and E. POP3

The two most common protocols used to retrieve email messages are IMAP (Internet Message Access Protocol) and POP3 (Post Office Protocol 3).

The incorrect answers:

B. AFP

AFP (Apple Filing Protocol) is used to manage files in macOS.

C. SMTP

SMTP (Simple Mail Transfer Protocol) is a common email protocol used for sending mail and is not used for retrieving mail.

D. LDAP

LDAP (Lightweight Directory Access Protocol) is used to store and retrieve information in a network directory. One common use of LDAP is to centralize authentication on a large distributed network.

F. SNMP

SNMP (Simple Network Management Protocol) is commonly used to gather statistics from network devices such as routers, switches, and servers.

G. SMB

SMB (Server Message Block) is a common file and printer sharing protocol on Microsoft Windows devices.



More information:

220-1001, Objective 1.6

Configuring Email on Mobile Devices

<https://professormesser.link/1001010602>

- C21.** An administrator would like to maintain an inventory of company-owned smartphones in a central database. Which of the following would allow the administrator to identify a unique physical mobile device?
- A. IP address
 - B. IMEI
 - C. Phone number
 - D. PRL

The Answer: B. IMEI

The IMEI (International Mobile Equipment Identity) is a unique number associated with a physical device. No other mobile phone or cellular device in the world shares the same IMEI, so it's a common way to reliably identify a unique mobile device.

The incorrect answers:

A. IP address

An IP (Internet Protocol) address can change often, and many smartphones will have more than one IP address assigned at a time. IP addresses are not tied to a single device, so it would be common for different devices to use the same IP address over time.

C. Phone number

Although a phone number is often associated with a person or entity, it's very easy to move a phone number from one device to another. The administrator would not want to use a phone number if they were looking to identify a specific physical device.

D. PRL

Some cellular providers will maintain a PRL (Preferred Roaming List) that the phone uses to connect to the desired cellular tower. Many devices on the same cellular number will share similar PRL values, so this would not be a good way to keep track of a physical device.



More information:

220-1001, Objective 1.6 - Mobile Device Connectivity

<https://professormesser.link/1001010601>

C22. Which of these cloud computing architectures would BEST describe several organizations sharing the same resources?

- A. Community
- B. IaaS
- C. Public
- D. Hybrid

The Answer: A. Community

A community cloud model is often used by multiple organizations to build a pool of resources with their combined financial contributions. This multi-tenant model provides a shared cloud-based deployment to organizations with similar goals and objectives.

The incorrect answers:

B. IaaS

IaaS (Infrastructure as a Service) is a cloud deployment model that provides processing power, memory, and storage. The user of this service would provide and manage the operating systems and applications.

C. Public

A public cloud-based service is one that is available to anyone on the Internet.

D. Hybrid

A hybrid cloud deployment model is a combination of both public and private clouds. Some organizations will deploy services that are used by anyone on the Internet, but may also require services that would be used privately by internal users.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- C23.** What port should be configured in a firewall to block secure terminal communication?
- A. 23
 - B. 443
 - C. 22
 - D. 110

The Answer: C. 22

Port 22 is used by SSH (Secure Shell), the encrypted terminal communication protocol.

The incorrect answers:

A. 23

Telnet (Telecommunications Network) is the protocol used for terminal communication, but Telnet communicates insecurely without encrypting the data.

B. 443

Web servers commonly use port 443 to send encrypted browser traffic using SSL (Secure Sockets Layer) or TLS (Transport Layer Security). Browser traffic is not commonly used for terminal communication.

D. 110

POP3 (Post Office Protocol version 3) uses port 110 to retrieve messages from an email server.



More information:

220-1001, Objective 2.1 - Common Network Ports

<https://professormesser.link/1001020102>

- C24.** The cooling fan controller in a server is failing. The server administrator has tested possible reasons for the failures and has created a plan for correcting the issue. Which of the following would be the best NEXT troubleshooting step?
- A. Verify the fan controller is working properly
 - B. List possible reasons for the controller failure
 - C. Present the plan to the change control team
 - D. Test for full functionality

The Answer: C. Present the plan to the change control team

Change control is an important part of the troubleshooting process for any organization. When the change control committee approves the plan, the fix can be tested and the issue can be documented.

The incorrect answers:

A. Verify the fan controller is working properly

Although a plan has been created to resolve the issue, the fix has not yet been applied. The verification of the fix must wait until after the plan has been implemented.

B. List possible reasons for the controller failure

In this example, the server administrator has already listed possible reasons and tested them to see if they would resolve the issue. The next step would be to implement the changes on the server.

D. Test for full functionality

The full functionality of the system shouldn't occur until after the resolution has been applied.



More information:

220-1001, Objective 5.1 - How to Troubleshoot

<https://professormesser.link/1001050101>

- C25.** A desktop administrator is troubleshooting an LCD display that shows a faint image at the bottom right of the screen. The faint image is displayed even when spreadsheets or browser screens are shown. Which of the following would be the MOST likely reason for this issue?
- A. Stuck pixels
 - B. Incorrect resolution
 - C. Bad video cable
 - D. Burn-in

The Answer: D. Burn-in

If an image is shown on a screen for an extended period of time, the display may continue to show a faint "ghost" of the image after the display has changed. This burn-in may be temporary, but it can be permanent in extreme circumstances.

The incorrect answers:

A. Stuck pixels

A stuck pixel is commonly a single pixel that shows a single color, even when the display is showing a different color. There's usually no more than one stuck pixel on a display, and that single pixel would not be large enough to show a faint image.

B. Incorrect resolution

An incorrect resolution may show a skewed or incorrect aspect ratio, and it would not display a faint image on the screen.

C. Bad video cable

A bad video cable might cause noise or missing information on the display, but it would not cause a faint image to constantly appear in a single place on the screen.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

- C26.** A systems administrator is troubleshooting a laptop that appears to boot normally, but nothing appears on the LCD display. After closer inspection, the administrator notices that text appears on the display but the output is so faint that it's difficult to see anything. What is the MOST likely cause of this issue?
- A. The video card is faulty
 - B. The laptop is not receiving enough power
 - C. The video driver is not configured properly
 - D. The inverter is faulty

The Answer: D. The inverter is faulty

The inverter on some LCD (Liquid Crystal Display) screens is used to convert the internal DC (Direct Current) to AC (Alternating Current) for use by the CCFL (Cold Cathode Fluorescent Lamp) backlights. If the inverter has failed, the backlights will not operate and it will be very difficult to read the information on the LCD screen.

The incorrect answers:

A. The video card is faulty

The video card would not commonly control the brightness of the backlight, and a faulty video card would most likely not display any information on the screen.

B. The laptop is not receiving enough power

If the laptop was not receiving enough power for the backlight, then it's unlikely that it would be receiving enough power to start the computer.

C. The video driver is not configured properly

A bad video driver might display output at an incorrect resolution or aspect ratio, but it would not disable the LCD backlight.



More information:

220-1001, Objective 5.5 - Troubleshooting Laptops

<https://professormesser.link/1001050501>

- C27.** A network administrator has installed a fifty meter network connection from one side of the building to the other, and now he would like to make sure that the punch-downs and crimps are connected to the correct pins on each side. Which of these tools would be the best way to confirm the wiring map?
- A. Multimeter
 - B. Cable tester
 - C. Toner probe
 - D. Loopback plug

The Answer: B. Cable tester

A cable tester can quickly perform a wire map to determine if all of the wires were properly crimped or punched down on both ends of the cable.

The incorrect answers:

A. Multimeter

A multimeter can provide continuity testing for wire mapping, but the two ends of the wires need to be close enough for both multimeter probes to reach the end of each wire. In this example, the wires have already been installed across a fifty meter distance.

C. Toner probe

Tone generators and inductive probes are useful for identifying the ends of a cable across a long distance, but they won't provide any information about the wire map.

D. Loopback plug

A loopback plug can help when diagnosing a physical network interface, but loopback plugs can't provide any information about the wire map of an existing cable run.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

- C28.** Which of these characteristics would be **MOST** associated with a thin client workstation?
- A.** Multiple CPUs
 - B.** Specialized GPU
 - C.** Network connectivity
 - D.** Maximum RAM installed

The Answer: C. Network connectivity

Thin client computers are viewing applications that are run on a separate computer across the network, so the hardware requirements would be minimal. Since most of the application use occurs across the network, the NIC (Network Interface Card) would be an important component of any thin client.

The incorrect answers:

A. Multiple CPUs

Thin clients don't run applications locally, so CPU usage would be at a minimum. Multiple CPUs would certainly not be a requirement with a thin client.

B. Specialized GPU

Most thin clients are viewing and controlling an application that's running on a remote computer. Most integrated GPUs (Graphical Processing Units) can handle the requirements of a thin client, so specialized or high-end graphics adapters are not commonly needed.

D. Maximum RAM installed

The applications running on a thin client are being processed on a remote computer, so the memory requirements of a thin client would be minimal.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- C29.** A user in the shipping department would like to connect multiple displays to a desktop computer. Which of the following would support this requirement? (Pick TWO)
- A. RJ45
 - B. Lightning
 - C. Fiber
 - D. HDMI
 - E. DB-9
 - F. DVI-D

The Answer: D. HDMI and F. DVI-D

HDMI (High-Definition Multimedia Interface) and DVI-D (Digital Visual Interface-Digital) are two common video connections. Some video adapters will provide multiple video connection types and allow different video outputs for each interface.

The incorrect answers:

A. RJ45

RJ45 (Registered Jack 45) is the common copper wire interface for Ethernet networks. Video displays don't commonly use RJ45 connectors.

B. Lightning

Apple's Lightning connectors can be used to send video from a mobile device, but desktop computers don't use the Lightning interface.

C. Fiber

Fiber optic connections are commonly used for long-distance network connections. Fiber optics are not commonly used for video links.

E. DB-9

DB-9 (D-subminiature Size B - 9 pin) is an interface that would be more correctly called DE-9 to specify its size E connector. DB-9/DE-9 is designed for the slower speeds of serial connections and is not used for video interfaces.



More information:

220-1001, Objective 3.1 - Video Cables

<https://professormesser.link/1001030103>

- C30.** A user is trying to listen to a playlist on a pair of wireless speakers, but the speakers are not visible from the music app. The user has restarted the smartphone and the speakers, but the problem has not been resolved. Which of the following would be the BEST way to correct this issue?
- A. Restart the smartphone
 - B. Pair the smartphone with the speakers
 - C. Replace the speakers
 - D. Install updated drivers in the smartphone

The Answer: B. Pair the smartphone with the speakers

A Bluetooth device must be paired with a mobile phone or tablet to appear available to applications. Once the Bluetooth speakers are paired with the smartphone, the speakers should appear in the music app.

The incorrect answers:

A. Restart the smartphone

This wireless speaker issue doesn't appear to be related to a problem with the operating system. If the speakers don't appear on the smartphone now, then they probably won't appear when the system restarts.

C. Replace the speakers

The root cause of this issue isn't yet known, so replacing the speakers would not be the best course of action. External speakers are commonly connected using Bluetooth, so the first troubleshooting steps should include verifying Bluetooth connectivity.

D. Install updated drivers in the smartphone

The smartphone does not need additional device drivers to use external speakers over Bluetooth. The software required to operate Bluetooth speakers is already installed on the smartphone.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices
<https://professormesser.link/1001050502>

- C31.** A network administrator has configured a wireless network to use two contiguous 20 MHz bonded channels on the 2.4 GHz band. Which of these wireless standards is in use?
- A. 802.11ac
 - B. 802.11b
 - C. 802.11n
 - D. 802.11g

The Answer: C. 802.11n

The 802.11n standard can operate with 20 MHz channel bandwidths or two contiguous 20 MHz channels to provide a 40 MHz channel bandwidth. If the 802.11n network is using the 2.4 GHz range, much of the available bandwidth will be consumed with this single 40 MHz transmission range.

The incorrect answers:

A. 802.11ac

The 802.11ac standard uses 80 MHz channels, with an option for 160 MHz contiguous or non-contiguous channels.

B. 802.11b

802.11b uses the 2.4 GHz range, but operates using a single 22 MHz channel.

D. 802.11g

802.11g also operates in the 2.4 GHz range, but uses a single 20 MHz channel.



More information:

220-1001, Objective 2.4 - Wireless Network Technologies

<https://professormesser.link/1001020402>

- C32.** A system administrator has found that other companies in the same office building have been connecting to her private wireless network. Which of the following would limit this access to the wireless network?
- A.** Enable WPA2 encryption
 - B.** Change the wireless channel
 - C.** Assign QoS values
 - D.** Configure NAT

The Answer: **A.** Enable WPA2 encryption

WPA2 (Wi-Fi Protected Access II) encrypts network traffic and prevents unauthorized users from accessing the wireless network.

The incorrect answers:

B. Change the wireless channel

All wireless channels are accessible by all wireless devices. Modifying the wireless channel can help avoid existing wireless interference, but it won't keep other users from accessing the wireless network.

C. Assign QoS values

QoS (Quality of Service) is used to set traffic flow priorities on the network. QoS is not used to limit outside access to a wireless network.

D. Configure NAT

NAT (Network Address Translation) allows a device to convert source and/or destination IP addresses as they flow through a device. NAT is not a security feature, and NAT is not used to limit outside access to a wireless network.



More information:

220-1001, Objective 2.3 - Configuring a SOHO Firewall

<https://professormesser.link/1001020302>

- C33.** A network engineer is installing a cable modem at a remote site. Which of these connectors would commonly be found on a cable modem?
- A. BNC
 - B. eSATA
 - C. SCSI
 - D. F-connector

The Answer: D. F-connector

The F-connector is the common coax screw-on connector used for television cable or cable modems. A cable modem installation will often use coax from the cable provider, and the F-connector is used to connect the coax to the cable modem.

The incorrect answers:

A. BNC

BNC (Bayonet Neill–Concelman) connectors are used for coax connections, but they are not commonly associated with cable television or cable modems. Enterprise network and video links are commonly associated with BNC connections.

B. eSATA

eSATA (External Serial ATA) is a standard for connecting external storage devices to a computer or laptop. eSATA is not associated with cable modems or network connections.

C. SCSI

SCSI (Small Computer System Interface) connectors are most commonly used with storage devices and storage subsystems. SCSI connections would not be used with cable modems.



More information:

220-1001, Objective 3.2 - Connectors

<https://professormessier.link/1001030201>

- C34.** A technician has just upgraded the memory on a desktop computer. After the computer runs for a few minutes, the system locks up completely and does not respond to keyboard or mouse input. After rebooting, no error messages are found in Event Viewer. Which of the following would be the BEST next troubleshooting step?
- A. Reinstall the operating system
 - B. Upgrade the BIOS
 - C. Update device drivers
 - D. Run hardware diagnostics

The Answer: D. Run hardware diagnostics

Issues that result in the system hanging without any additional information can be frustrating to troubleshoot. Since there are no error messages or log entries associated with the issue, the best option would be to perform a hardware diagnostic and at least confirm that the hardware is working as expected.

The incorrect answers:

A. Reinstall the operating system

Without any error messages or log entries, there's no way to know if the operating system is the issue. Instead of making such a significant change, it would be useful to gather more information about the current system and any potential issues.

B. Upgrade the BIOS

There's no evidence that the BIOS is associated with these lockup issues, and it would be unusual for a BIOS to be the root cause of this issue. Because of these reasons, upgrading the BIOS and making a change to the computer would not be the best next troubleshooting step.

C. Update device drivers

A bad device driver can certainly cause problems with a system, but normally there would be an operating system error or Windows Stop message that would provide more information. Before making any changes, it would be good to rule out any hardware problems first.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- C35.** Which of these network types would MOST likely be categorized as a WAN?
- A. A point-to-point connection to an office in another country
 - B. A fiber connection to a building across a campus
 - C. A connection to a remote office on the other side of town
 - D. A link between a mobile device and an automobile

The Answer: A. A point-to-point connection to an office in another country

WAN (Wide Area Network) connections are between locations in different cities, states, or countries.

The incorrect answers:

B. A fiber connection to a building across a campus

A network within a building or a campus is categorized as a LAN (Local Area Network).

C. A connection to a remote office on the other side of town

Networks that connect sites in the same city are MANs (Metropolitan Area Networks). MAN links are usually farther away than LANs, but not as far as a WAN.

D. A link between a mobile device and an automobile

A PAN (Personal Area Network) describes the network used by an individual to connect their mobile device and accessories. For example, the Bluetooth network connecting a mobile phone with a wireless headset is a PAN.



More information:

220-1001, Objective 2.7 - Network Types

<https://professormesser.link/1001020702>

- C36.** Which of these tools would be the MOST appropriate when working with 110 blocks?
- A. Loopback plug
 - B. Multimeter
 - C. Crimper
 - D. Punch-down tool

The Answer: D. Punch-down tool

Punch-down tools are used to attach individual wires into punch-down blocks such as the 66 block or 110 block. The punch down tool pushes wires into the block and cuts any excess wire from the block.

The incorrect answers:

A. Loopback plug

Loopback plugs are useful when running diagnostics on physical interfaces. The loopback redirects transmitted data back to the receive interface of a device, allowing the technician to compare the data sent with the data received.

B. Multimeter

A multimeter is useful when troubleshooting voltages or continuity, but they would not be the most appropriate when working with a 66 block or 110 block.

C. Crimper

Crimpers are used to attach modular connectors to the end of a cable. With a 110 block, the wires are punched into the block instead of crimped onto an RJ45 connector.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

- C37.** A system administrator is configuring the IP address settings on a remote server. Which of these settings would enable the server to communicate with other devices using a fully qualified domain name?
- A. DHCP
 - B. IP address
 - C. DNS
 - D. Subnet mask

The Answer: C. DNS

A DNS (Domain Name System) server provides the conversion between fully qualified domain names and IP (Internet Protocol) addresses. With a DNS, we can refer to servers by their name instead of using IP addresses.

The incorrect answers:

A. DHCP

DHCP (Dynamic Host Configuration Protocol) is used to automatically assign IP address configurations when a device connects to the network. Although DHCP can configure the DNS address, it's the DNS server itself that provides the resolution between name and IP address.

B. IP address

Each device on the network is provided a unique IP address, and DNS provides the conversion between the name of the device and this unique IP address.

D. Subnet mask

Subnet masks are used by the local device to determine its IP subnet. Using a subnet mask does not provide any communication based on a fully qualified domain name.



More information:

220-1001, Objective 2.6 - An Overview of IPv4 and IPv6
<https://professormesser.link/1001020601>

- C38.** Which of the following devices makes forwarding decisions based on destination IP address?
- A. Repeater
 - B. Router
 - C. Hub
 - D. Managed switch

The Answer: B. Router

A router decides the next hop of an packet based on the packet's destination IP (Internet Protocol) address.

The incorrect answers:

A. Repeater

Repeaters are relatively simple devices that receive a signal, regenerate the signal, and then pass that signal to the next network link. Repeaters don't examine the information in the network flow to make a forwarding decision.

C. Hub

A hub could be considered a multi-port repeater, since it doesn't examine any of the data to determine where traffic should be forwarded. A hub receives data on one interface, and then sends that data to every other interface on the hub.

D. Managed switch

Both managed and unmanaged switches make forwarding decisions the same way. A switch examines the destination MAC (Media Access Control) address in a frame and forwards traffic based on that address. A switch does not make decisions based on IP address.



More information:

220-1001, Objective 2.2 - Network Devices

<https://professormesser.link/1001020201>

- C39.** A system administrator has been tasked with running an application from one system architecture on a computer running a completely different system architecture. Which of the following would BEST describe this requirement?
- A. Virtualization
 - B. Elevation
 - C. Emulation
 - D. Synchronization

The Answer: C. Emulation

The best environment for running an application is the system architecture in which it was originally designed. However, there may be instances where the original architecture may be unavailable. In those instances, it may be possible to emulate the original system architecture on a completely different computing system.

The incorrect answers:

A. Virtualization

The hypervisor of a virtualized system is managing VMs (Virtual Machines) that have been designed for that system architecture. For example, a hypervisor on an Intel-based computer will manage VMs that are natively designed to operate on an Intel-based system.

B. Elevation

Elevation is an operating system process that allows a user to modify their effective rights and permissions. This is commonly done by administrators that will normally run with user-level permissions, but elevate their account permissions when modifications are required to the operating system or higher-level processes.

D. Synchronization

Synchronization is the process of duplicating data in different locations. We often synchronize data across our desktops and mobile devices so that all of our contacts, emails, and documents are the same across all platforms.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

- C40.** A user in the accounting department had a new laptop delivered and installed, but they are reporting that the network throughput seems much slower than the previous computer. Which of the following would be the most likely cause of these slow transfer speeds?
- A. Incorrect SSID
 - B. Device is assigned an APIPA address
 - C. Incorrect gateway configuration
 - D. Duplex mismatch
 - E. Device is assigned an RFC 1918 address

The Answer: D. Duplex mismatch

A mismatch of half-duplex and full-duplex will not cause a total disruption of network communication, but it will cause the network to have slow performance.

The incorrect answers:

A. Incorrect SSID

The SSID (Service Set Identifier) is the name associated with a wireless network. An incorrect SSID would not cause performance issues on the network.

B. Device is assigned an APIPA address

An APIPA (Automatic Private IP Addressing) address is assigned when a DHCP server is not available. This link-local address can only communicate to other devices on the same network, but the performance of that communication would not have slower performance than normal network data.

C. Incorrect gateway configuration

An incorrect gateway configuration would limit the laptop from communicating beyond the local network, but it would not commonly cause the network traffic to perform slower than expected.

E. Device is assigned an RFC 1918 address

An RFC 1918 (Request for Comment document 1918) address is a private IP address that is commonly assigned to most devices on our local networks. An RFC 1918 address does not cause a performance issue when communicating over the network.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- C41.** A workstation is configured with a video card that outputs DVI-D, but it needs to connect to an LCD projector that requires an HDMI connection. Which of the following would be the BEST way to connect this workstation to the projector?
- A. DVI-D to HDMI adapter
 - B. Digital to analog converter
 - C. VGA to HDMI adapter
 - D. USB to HDMI converter

The Answer: A. DVI-D to HDMI adapter

DVI-D (Digital Visual Interface-Digital) and HDMI (High-Definition Multimedia Interface) are electrically compatible and only require an interface adapter to connect between devices. No conversion of the video signal is required between DVI-D and HDMI.

The incorrect answers:

B. Digital to analog converter

Both DVI-D and HDMI are digital, so a converter to analog would not be an appropriate option.

C. VGA to HDMI adapter

VGA (Video Graphics Array) provides an analog video signal, and the interface for VGA is quite different than DVI-D.

D. USB to HDMI converter

Although USB can output video signals, the process requires a conversion between USB and HDMI. It's much simpler to connect DVI-D and HDMI directly together with no conversion of the signal.



More information:

220-1001, Objective 3.1 - Adapters and Converters

<https://professormesser.link/1001030108>

- C42.** An Android user needs to transfer some presentations from their desktop computer to their smartphone. Which of the following would be the BEST choice?
- A. Lightning
 - B. RJ45
 - C. USB-C
 - D. Thunderbolt

The Answer: C. USB-C

USB-C is a connection type used on many Android-based devices.

The incorrect answers:

A. Lightning

Lightning interfaces are exclusive to Apple iOS devices. Android devices do not use lightning connectors.

B. RJ45

RJ45 connectors are common on Ethernet cables, but they're too large for today's thin smartphones.

D. Thunderbolt

Thunderbolt interfaces are common on desktop computers. Android and iOS devices do not use Thunderbolt connections.



More information:

220-1001, Objective 1.7 - Mobile Device Synchronization

<https://professormesser.link/1001010701>

C43. What type of network connection is commonly used by DSL?

- A. Coax
- B. Fiber optic
- C. Line-of-sight
- D. Twisted pair copper

The Answer: D. Twisted pair copper

DSL (Digital Subscriber Line) networks use the same twisted pair copper as traditional phone lines.

The incorrect answers:

A. Coax

Coaxial cables are commonly associated with cable television and cable modem networks.

B. Fiber optic

Fiber optic communication is a common network type for long distance communication, but fiber optic is not used to bring DSL Internet links into a home or business.

C. Line-of-sight

Line-of-sight networks are wireless connections that work in a relatively small regional area. Network types like WiMAX would be categorized as a line-of-sight network, and DSL networks do not use line-of-sight for communication.



More information:

220-1001, Objective 2.7 - Internet Connection Types

<https://professormesser.link/1001020701>

- C44.** A workstation has been configured with a gigabit NIC, RAID array, and a series of hard drives. Which of the following would be the MOST likely use of this workstation?
- A. NAS
 - B. CAD/CAM workstation
 - C. Gaming PC
 - D. Thin client

The Answer: A. NAS

A NAS (Network Attached Storage) device is a centralized storage facility on the network. A NAS commonly uses RAID (Redundant Array of Independent Disks) to provide uptime and availability should a drive fail.

The incorrect answers:

B. CAD/CAM workstation

A CAD/CAM (Computer Aided Design / Computer Aided Manufacturing) computer does not commonly use a RAID array and multiple drives.

CAD/CAM systems use high-end graphics adapters and large scale CPUs for 3D design applications.

C. Gaming PC

A gaming PC might use a fast network interface card, but a RAID array with multiple drives is not a common configuration when gaming.

D. Thin client

A thin client uses the minimum hardware resources possible, so a RAID array with multiple drives would not be used with thin clients.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- C45.** A system administrator has just built a new server with an eight core CPU. When viewing information in Windows Task Manager, the utility shows CPU performance for sixteen different processors. Which of the following would be the MOST likely reason for this output?
- A. Task Manager displays CPU input and output separately
 - B. The CPU supports hyper-threading
 - C. The BIOS requires an upgrade to support the newer CPU
 - D. The CPU is faulty

The Answer: B. The CPU supports hyper-threading
HTT (Hyper-threading Technology) provides additional processing efficiency by treating a single CPU (Central Processing Unit) as two separate processors. Although this does not provide twice the performance, it can increase processing efficiency by fifteen to thirty percent.

The incorrect answers:

A. Task Manager displays CPU input and output separately
Task Manager does not separate CPU input and output into different metrics or views.

C. The BIOS requires an upgrade to support the newer CPU
Some motherboards may require a BIOS (Basic Input Output System) upgrade to support newer CPUs, but this requirement is not common and would not be seen as multiple CPUs in Task Manager.

D. The CPU is faulty
A bad CPU would cause problems during startup or errors during normal operation. Showing multiple CPUs in Task Manager would not indicate a faulty CPU.



More information:

220-1001, Objective 3.5 - CPU Features

<https://professormesser.link/1001030508>

- C46.** What type of proprietary Apple connector can be plugged in face up or face down?
- A. Lightning
 - B. Thunderbolt
 - C. FireWire
 - D. USB-C

The Answer: A. Lightning

The Apple lightning connector is only found on Apple devices, and it allows for a higher power output to charge larger phone and tablets. The connector can also be plugged in either face up or face down.

The incorrect answers:

B. Thunderbolt

Thunderbolt connectors were common on Apple devices, but they were not proprietary to Apple and were also found on many other manufacturer's devices. The Thunderbolt connector is not a bi-directional connector.

C. FireWire

Although the name FireWire is an Apple trademark, the IEEE 1394 standard was used by other manufacturers with the names i.LINK, Lynx, and others. FireWire connectors cannot be plugged in face up or face down.

D. USB-C

USB-C is an industry standard used by many different manufacturers, and the USB-C connector can be plugged in either face up or face down.



More information:

220-1001, Objective 1.5 - Mobile Device Connections

<https://professormesser.link/1001010501>

C47. Which of the following best describes elasticity in cloud computing?

- A.** A cloud-based application framework is used to build more complex apps
- B.** The cloud operates in an internal virtualized data center
- C.** All cloud storage is managed from a central pool
- D.** The cloud resources can scale up as needed

The Answer: D. The cloud resources can scale up as needed
Rapid elasticity is a cloud computing characteristic that allows the scaling up and down of cloud-based applications on an as-needed basis.

The incorrect answers:

A. A cloud-based application framework is used to build more complex apps

PaaS (Platform as a Service) is a cloud deployment model that provides a centralized and managed framework for advanced application development.

B. The cloud operates in an internal virtualized data center

An internal cloud-based infrastructure is categorized as a private cloud deployment model.

C. All cloud storage is managed from a central pool

Resource pooling is an important characteristic in cloud computing. All computing resources can be centralized, and portions of the pool can be used for each cloud resource as needed.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- C48.** A network administrator has been asked to control network access to destination websites based on the URL. Which of the following would provide this functionality?
- A. QoS
 - B. Whitelisting
 - C. NAT
 - D. MAC filtering

The Answer: B. Whitelisting

Whitelisting allows an administrator to limit all access through a device unless the content has been previously approved and configured in the device. This is a very restrictive security posture, but it does provide extensive control of network traffic flows. In this example, the whitelists are based on the URL (Uniform Resource Locator) of a website, commonly referenced as the web site address.

The incorrect answers:

A. QoS

QoS (Quality of Service) can be used to set different network priorities for various application traffic flows. QoS is not commonly used to allow or disallow access to a particular website.

C. NAT

NAT (Network Address Translation) is used to modify the source and/or destination IP (Internet Protocol) address of a packet. NAT is not commonly used to allow or disallow access to a particular website.

D. MAC filtering

MAC (Media Access Control) filtering is a method of limiting access to network services based on the physical address of the device. MAC addresses are not used to allow or disallow access to a particular website.



More information:

220-1001, Objective 2.3 - Configuring a SOHO Firewall
<https://professormesser.link/1001020302>

- C49.** Which of the following would be MOST commonly associated with a KVM switch?
- A. DB-9
 - B. 802.11
 - C. VGA
 - D. BNC

The Answer: C. VGA

VGA (Video Graphics Array) is a standard video format that's often used on KVM (Keyboard/Video/Mouse) switches. USB (Universal Serial Bus) or PS/2 (Personal System/2) interfaces would be commonly connected to the keyboard and mouse ports.

The incorrect answers:

A. DB-9

The serial connectivity used over DB-9 (D-subminiature size B, 9 pin) is usually associated with management ports on switches, router, and other infrastructure devices. DB-9 interfaces are not used for modern keyboard, video, or mouse connections.

B. 802.11

The keyboard, video, and mouse connections on a KVM switch are all wired connections. 802.11 wireless networking is not commonly associated with a KVM switch.

D. BNC

BNC (Bayonet Neill–Concelman) interfaces are usually associated with coax or high-end video connections. KVM switches commonly use VGA or HDMI (High-Definition Multimedia Interface) connections instead of BNC ports.



More information:

220-1001, Objective 3.6 - Peripherals

<https://professormesser.link/1001030601>

- C50.** A user has reported that they can't browse to Google's search page at <https://www.google.com>. The workstation IP address is 192.168.1.5, the subnet mask is 255.255.255.0, the default gateway is 192.168.1.1, and the domain name servers are 10.2.2.1 and 10.2.2.2. A technician can successfully ping the local IP address, the default gateway, and Google's DNS server at 8.8.8.8. Which of the following is the most likely cause of this issue?
- A.** The Ethernet adapter's duplex setting is incorrect
 - B.** The default gateway is faulty
 - C.** The Internet connection is down
 - D.** The DNS servers are faulty
 - E.** The client's default gateway configuration is incorrect

The Answer: D. The DNS servers are faulty

The DNS (Domain Name System) servers are responsible for converting a name (www.google.com) to an IP address. If the DNS servers are not working, then an IP address for a device cannot be resolved and the communications process can't continue.

The incorrect answers:

A. The Ethernet adapter's duplex setting is incorrect

A duplex mismatch can cause performance slowdowns, but it would not restrict access to a website.

B. The default gateway is faulty

The successful ping of Google's DNS server at 8.8.8.8 is a communication occurring to a different network, so we know that the default gateway is operating correctly.

C. The Internet connection is down

If the Internet connection was not working, the ping to Google's DNS server at 8.8.8.8 would not be successful.

E. The client's default gateway configuration is incorrect

The ping to an external address is working properly, so the default gateway configuration is most likely not the cause of this issue.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- C51.** A user in the facilities department is having an issue printing their complex blueprints to a network laser printer. When they pick up their output, the top half of the blueprint is printed but the bottom half of the page is completely blank. Which of these is the MOST likely cause of this issue?
- A. Network is faulty
 - B. Printer is out of memory
 - C. The fuser is not operating
 - D. Printer is out of toner

The Answer: B. Printer is out of memory

A laser printer must render an entire page in memory before starting the printing process. If a complex image exhausts the available memory, only a portion of the page will be printed.

The incorrect answers:

A. Network is faulty

A problem with the network might cause a slow transfer of the print job to the printer, but it wouldn't cause a portion of the page to be printed.

C. The fuser is not operating

The fuser applies heat and pressure to permanently melt the toner to the printed page. A bad fuser would not cause a portion of the page to be printed.

D. Printer is out of toner

A laser printer low on toner would show a gradual fading of images as each page is printed. The low toner would not cause an image to abruptly stop printing on a page.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- C52.** A user is connecting their laptop to a docking station for the first time, but is not able to see any video output. The USB keyboard and mouse connected to the docking station appear to be working normally. Which of the following should be the NEXT troubleshooting task?
- A.** Use the secondary Fn display key
 - B.** Toggle airplane mode on the laptop
 - C.** Install an updated video driver
 - D.** Enable external video output in the laptop BIOS

The Answer: **A.** Use the secondary Fn display key

The Fn (Function) key on a laptop is used to control laptop features without requiring additional keys or buttons. Most laptops will include a Fn key that will enable the external video display and select the type of video that will appear on the external screen.

The incorrect answers:

B. Toggle airplane mode on the laptop

Airplane mode would disable network connections, but would not effect the video output.

C. Install an updated video driver

Selecting the video output is a standard configuration for video on a laptop and does not require a driver upgrade.

D. Enable external video output in the laptop BIOS

The laptop's BIOS can be used to administratively enable or disable the video output, but this option is not often configured. Before rebooting the system into the BIOS, it's much easier to check the video selection Fn key.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

- C53.** Two computers in a test lab are used to transfer files to each other over a wireless network, but the test lab does not have an access point. Which of the following would best describe this connection?
- A. WPA2 mode
 - B. Ad hoc mode
 - C. SSID mode
 - D. Infrastructure mode

The Answer: B. Ad hoc mode

Ad hoc mode configures a device to communicate directly to another device using the wireless network adapter. With ad hoc mode, a central access point is not required to communicate to another device.

The incorrect answers:

A. WPA2 mode

WPA2 (Wi-Fi Protected Access version 2) is a wireless encryption protocol used to protect data sent over wireless networks. WPA2 does not describe a wireless connection between two devices.

C. SSID mode

The SSID (Service Set Identifier) is the name of the wireless network configured on an access point. When two devices are communicating without an access point, an SSID is not used.

D. Infrastructure mode

Infrastructure mode describes the wireless communication process when an access point is used.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

- C54.** A Windows computer is configured to obtain an IP address automatically. Which of the following would occur if the automatic assignment process was not working?
- A.** The IP address would be set to 0.0.0.0
 - B.** A link-local address would be assigned
 - C.** The Ethernet adapter would be disabled
 - D.** The last known good IP address would be used

The Answer: B. A link-local address would be assigned

If a device is configured to obtain an IP address from a DHCP (Dynamic Host Configuration Protocol) server and the DHCP server is not available, an APIPA (Automatic Private IP Addressing) address, or link-local address, would be self-assigned.

The incorrect answers:

A. The IP address would be set to 0.0.0.0

IP address configurations of 0.0.0.0 are not valid for normal network communication.

C. The Ethernet adapter would be disabled

Although an IP address would not be obtained from a DHCP server, the operating system would not disable the entire network adapter.

D. The last known good IP address would be used

If the DHCP process was not working, the computer would not assume that the previous IP address would still be available. Instead, the computer would assign itself an APIPA address for local communication.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- C55.** A web server administrator has received a notification that disk 1 in a RAID 5 array has failed. Which of the following would be the BEST next step to resolve this drive failure?
- A. Replace disk 1 and restore from backup
 - B. Replace all drives and restore from backup
 - C. Replace all drives and rebuild the array
 - D. Replace disk 1 and rebuild the array

The Answer: D. Replace disk 1 and rebuild the array

A RAID 5 (Redundant Array of Independent Disks, level 5) array is designed to maintain data availability in the event of a single drive failure. In this example, it's unlikely that the users even realized that one of the drives on the array was suddenly unavailable, because the array would continue to operate normally with all data intact. To resolve this issue, the bad drive would need to be replaced, and the array would rebuild the data on the new drive using the redundant data from other drives.

The incorrect answers:

A. Replace disk 1 and restore from backup

No data was lost on the RAID 5 array, and the array will continue to provide access to read data and write data to the array. A restoration from backup is not required after replacing the bad drive.

B. Replace all drives and restore from backup

Only one drive has failed, so there's no need to replace the good drives. A RAID 5 array will also maintain availability of the data, so a backup is also not required.

C. Replace all drives and rebuild the array

If all drives are replaced in the RAID 5 array, there would be no data to rebuild from. The bad drive is the only drive that needs to be replaced, and the rebuilding process will rebuild the data on the new drive.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

- C56.** IoT devices can build connections between each other to increase the overall network communication distance. Which of the following would best describe this type of network?
- A. PAN
 - B. LAN
 - C. WMN
 - D. MAN

The Answer: C. WMN

A WMN (Wireless Mesh Network) is commonly used by IoT (Internet of Things) devices to extend the overall reach of the network. All devices connect to each other to create a mesh "cloud" that can be used by all of the IoT devices.

The incorrect answers:

A. PAN

PAN (Personal Area Network) connections describe the wireless links between mobile devices and personal accessories. For example, a Bluetooth headset would be considered a PAN connection.

B. LAN

A LAN (Local Area Network) describes the network used in the immediate vicinity to a computing devices. The Ethernet network in a business or home would be considered a LAN.

D. MAN

MAN (Metropolitan Area Network) links are usually within the same city or general metropolitan area. MANs are usually the midpoint between a LAN and a WAN (Wide Area Network).



More information:

220-1001, Objective 2.7 - Network Types

<https://professormesser.link/1001020702>

- C57.** A user in the accounting department is reporting that all of the printed pages from a networked laser printer are completely blank. Nothing appears to be written on any of the printed pages. Which of the following would be the MOST likely cause of this issue?
- A. Fuser is faulty
 - B. Print drivers are incorrect
 - C. Printer out of memory
 - D. Toner cartridge is faulty

The Answer: D. Toner cartridge is faulty

If the toner cartridge is completely empty or is not properly providing toner to the printer, then nothing will be printed on the final output.

The incorrect answers:

A. Fuser is faulty

The fuser uses heat and pressure to permanently affix the toner to the page. If the fuser is not working, the final output will easily smear when touched. A faulty fuser will not cause the output to appear blank.

B. Print drivers are incorrect

An incorrect print driver could cause the output to be garbled or different than the original, but it would not cause the page to appear blank.

C. Printer out of memory

When a printer runs out of memory during the page rendering process, it will continue with the printing process but only a portion of the page is printed. The printer will also display a message on the printer console regarding the memory issue. An out of memory condition does not commonly print blank pages.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- C58.** A systems administrator has just installed a new server in a data center. When pressing the power button, there's no response from the server, no lights appear on the front display, and no fans are spinning. Which of the following would be the MOST likely reason for this issue?
- A. An operating system is not installed on the server
 - B. The power supply switch is set to the wrong input voltage
 - C. The BIOS needs to be upgraded
 - D. The keyboard and mouse are not connected

The Answer: B. The power supply switch is set to the wrong input voltage. If the data center power provides 120 volts and the computer's power supply is set to 240 volts, the computer will not be able to start. Some power supplies will attempt to start with the lower voltage while other power supplies will not work at all. In either case, the computer is not going to perform properly with the lower voltage and may be damaged by the difference in expected voltage.

The incorrect answers:

A. An operating system is not installed on the server

An operating system is not required to power on a computer. Once the POST (Power On Self-Test) process completes, a computer without an operating system will provide an error message on the screen such as "No Bootable Device."

C. The BIOS needs to be upgraded

A BIOS upgrade is not required to power on a computer. Upgrading the BIOS is not a common process, and it's not required to have a system power on.

D. The keyboard and mouse are not connected

The lack of a keyboard or mouse will not prevent a computer from powering on, but the BIOS may provide a message after the POST process that a keyboard is not connected to the system.



More information:

220-1001, Objective 3.7 - Computer Power

<https://professormesser.link/1001030701>

- C59.** Which of the following services would automatically provide an IP address to any device connected to the network?
- A. DNS
 - B. Proxy
 - C. IPS
 - D. DHCP

The Answer: D. DHCP

DHCP (Dynamic Host Configuration Protocol) is used to automatically assign IP addresses to network devices. A device configured to use DHCP will be assigned an IP address without any intervention from the user or network administrator.

The incorrect answers:

A. DNS

DNS (Domain Name Service) is used to translate between a fully qualified domain name (FQDN) and an IP (Internet Protocol) address. This functionality allows the user to type `www.professormesser.com` instead of memorizing a specific IP address.

B. Proxy

Proxies are used to sit between a network conversation to provide additional management or security features. Proxies are not used to automatically assign IP addresses.

C. IPS

An IPS (Intrusion Prevention System) can identify known attacks and block them before they enter the network. An IPS is not used to automatically assign IP addresses.



More information:

220-1001, Objective 2.6 - Assigning IP Addresses

<https://professormesser.link/1001020602>

- C60.** A quality assurance team is planning to use a single workstation to simultaneously test an application across multiple operating systems. Which of the following components would be MOST important for this workstation?
- A. Enhanced sound card
 - B. Gigabit NIC
 - C. Dual monitors
 - D. Maximum RAM

The Answer: D. Maximum RAM

Running multiple operating systems simultaneously on a single system will require extensive CPU and RAM usage.

The incorrect answers:

A. Enhanced sound card

There is no mention of audio requirements for the tested application, so using an enhanced sound card would not be the most important component for this computer.

B. Gigabit NIC

These applications will be running on a single workstation, so the network connection does not appear to be the most important component in this system.

C. Dual monitors

Dual monitors are not specified as a requirement for these applications, so adding additional monitors would not be the most important part of this computer.



More information:

220-1001, Objective 3.8 - Custom Computer Systems

<https://professormesser.link/1001030801>

- C61.** A computer lab is purchasing supplies for their 3D printers. Which of the following should be included on this order?
- A. Toner cartridge
 - B. Ink ribbon
 - C. Plastic filament
 - D. Ink cartridge

The Answer: C. Plastic filament

3D printers melt plastic filament in layers to create a 3D object.

The incorrect answers:

A. Toner cartridge

Toner cartridges are used by laser printers to create the output on the page. 3D printers do not use toner cartridges.

B. Ink ribbon

Ink ribbons are commonly used by impact printer or dot matrix printers, and ink ribbons are not used by 3D printers.

D. Ink cartridge

Inkjet printers use cartridges to store the ink used during the printing process. 3D printers do not use ink cartridges.



More information:

220-1001, Objective 3.11 - Virtual and 3D Printers

<https://professormesser.link/1001031109>

- C62.** A network administrator has configured a system to operate in infrastructure mode. Which of the following would BEST describe this mode?
- A.** The wireless network communicates through an access point
 - B.** The BIOS settings cannot be changed without an administrator password
 - C.** No changes can be made to the operating system files
 - D.** All files shares are stored on a central NAS

The Answer: A. The wireless network communicates through an access point

Infrastructure mode uses an access point to communicate with other devices on the network. Ad hoc mode communicates directly to another device without using an access point.

The incorrect answers:

B. The BIOS settings cannot be changed without an administrator password

Administrative BIOS password settings are usually called supervisor passwords. Infrastructure mode does not refer to the system BIOS.

C. No changes can be made to the operating system files

Windows supports many different administration options, but infrastructure mode is not associated with security in the Windows file system.

D. All files shares are stored on a central NAS

Infrastructure mode is not associated with the storage of Windows file shares or the local of the shares.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

- C63.** A server administrator is building a web server with three hard disk drives. The storage for the server requires the fastest possible access and redundancy is not a primary requirement. Which of the following would be the BEST choice for this server?
- A. RAID 10
 - B. RAID 1
 - C. RAID 0
 - D. RAID 5

The Answer: C. RAID 0

RAID (Redundant Array of Independent Disks) level 0 does not provide any redundancy, but it will efficiently stripe data across multiple drives. RAID 0 does not require the duplication of data or calculation of parity, so it's commonly considered the fastest access of the RAID levels.

The incorrect answers:

A. RAID 10

RAID 10 combines both striping and mirroring to provide a redundant data array. However, RAID 10 requires four drives and the web server in this question only has three.

B. RAID 1

RAID 1 is also known as mirroring, and RAID 1 information is duplicated between separate physical drives. The process of duplicating this data makes the efficiency of RAID 1 to be a bit less efficient than RAID 0 striping.

D. RAID 5

RAID 5 provides redundancy by calculating a parity and storing that parity along with the original data. This parity calculation is not a significant performance issue, but it does make RAID 5 generally perform a bit less efficiently than RAID 0.



More information:

220-1001, Objective 3.4 - RAID

<https://professormesser.link/1001030402>

- C64.** A network engineer is troubleshooting the connection of a tablet to a cellular provider's network. Which of these would BEST describe this network connection?
- A.** Integrated Services Digital Network
 - B.** Long Term Evolution
 - C.** Media Access Control
 - D.** Near Field Communication

The Answer: B. Long Term Evolution

Long Term Evolution, or LTE, is a converged standard used by mobile providers to provide high-speed communication over cellular frequencies.

The incorrect answers:

A. Integrated Services Digital Network

Integrated Services Digital Network (ISDN) is a wired networking standard that provides digital communication over twisted pair copper wiring.

C. Media Access Control

Media Access Control, or MAC, commonly describes the hardware address of a networked device. For example, each Ethernet adapter has a unique MAC address.

D. Near Field Communication

Near field communication, or NFC, is a two-way wireless standard designed for short range communication. One common use of NFC is to pay for purchases at a store's checkout terminal.



More information:

220-1001, Objective 2.4 - Cellular Network Technologies

<https://professormesser.link/1001020403>

- C65.** A developer has requested a server for testing a new application. To complete this request, the system administrator logs into his cloud console and allocates a new server configuration. Which of the following describes this process?
- A.** Metered
 - B.** Resource pooling
 - C.** Measured
 - D.** On-demand

The Answer: D. On-demand

The characteristic of on-demand self-service is an important aspect of cloud computing. With an on-demand process, system administrators can instantly create, modify, or delete services. This provides the flexibility to build an application infrastructure for any service at any time.

The incorrect answers:

A. Metered

A metered cloud computing service is used to apply costs back to actual usage. For example, a user's costs could be based on the number of uploads, downloads, and total storage space used on a cloud computing platform. This might be compared to a non-metered service, which commonly uses a set cost for usage.

B. Resource pooling

It's common to place all of the computing power in one place to use for all cloud services. As more resources are needed, they are allocated from this central pool of resources.

C. Measured

A measured service can be used to evaluate utilization, costs, network throughput, and almost any other metric associated with a cloud-based deployment. These measurements can be used to show current usage, plan additional application instances, and determine future cost estimates.



More information:

220-1001, Objective 4.1 - Cloud Models

<https://professormesser.link/1001040101>

- C66.** A user is complaining that their laptop keyboard is displaying numbers when letter keys are pressed. When you look at the laptop, you confirm that pressing some of the letters on the keyboard shows numbers on the screen. What is the MOST likely cause of this problem?
- A. Windows has remapped the keyboard layout
 - B. The secondary function key has enabled NumLock
 - C. The Caps Lock key is enabled
 - D. The laptop's keyboard is faulty

The Answer: B. The secondary function key has enabled NumLock. The smaller keyboard on laptop has a limited amount of space available. To resolve this lack of real estate, many manufacturers will add a secondary Fn (Function) key to the keyboard that will toggle between a normal key and a secondary function. This allows manufacturers to have the same functionality as a full-size keyboard with a smaller number of physical keys. If the Fn key enables NumLock, then the keyboard letters will operate as a numeric keypad.

The incorrect answers:

A. Windows has remapped the keyboard layout

It's certainly possible to remap the keyboard layout in the Windows operating system, but that remap will affect all of the keys.

C. The Caps Lock key is enabled

CapsLock will act as if the shift key is depressed, so that any key will show the uppercase letter. Enabling CapsLock will not change the letter keys to numbers.

D. The laptop's keyboard is faulty

It's certainly possible that the laptop keyboard could have a hardware issue, but it's not the most likely cause of this issue given the information provided in the question.



More information:

220-1001, Objective 1.3 - Laptop Features

<https://professormesser.link/1001010301>

- C67.** Which of the following would be commonly used to connect a chip reader to a point of sale terminal?
- A. TRS
 - B. BNC
 - C. VGA
 - D. USB

The Answer: D. USB

USB (Universal Serial Bus) is a common interface to use for mouse, keyboard, printers, and many other peripheral connections. The chip reader used on a point of sale terminal commonly connects over this USB interface.

The incorrect answers:

A. TRS

TRS (Tip/Ring/Sleeve) is a common connection type for analog headphones and other audio interfaces, but it's not commonly used for chip readers.

B. BNC

BNC (Bayonet Neill–Concelman) interfaces are commonly found on network and video connections, but the bayonet connection of a BNC connector is not required for chip readers.

C. VGA

VGA (Video Graphics Array) interfaces are used exclusively for video connections. Chip readers do not use VGA for connectivity.



More information:

220-1001, Objective 3.6 - Peripherals

<https://professormesser.link/1001030601>

- C68.** A server administrator has recently upgraded the CPU in one of his database servers, and he has also installed a new heat sink and a CPU fan. Unfortunately, the computer is now powering down after ten minutes of normal use. Which of the following is the MOST likely reason for this issue?
- A. Insufficient thermal paste
 - B. Overloaded power supply
 - C. The OS is out of memory
 - D. Incorrect BIOS configuration

The Answer: A. Insufficient thermal paste

If a computer runs for a number of minutes and suddenly shuts down, then heat is probably the root cause of the issue. Since this system was just upgraded and the cooling system was changed, the most likely reason for this problem is related to the cooling of the CPU.

The incorrect answers:

B. Overloaded power supply

This question didn't mention any significant changes to power usage. Given the most recent changes, a power issue would not be the most likely reason for these abrupt outages.

C. The OS is out of memory

An out of memory situation would usually provide a message on the screen or reboot the system. Running out of RAM would not commonly be associated with the computer powering down completely.

D. Incorrect BIOS configuration

Upgrading a CPU in a system can sometimes require BIOS configurations, but any errors would commonly be identified during the startup process.



More information:

220-1001, Objective 3.5 - CPU Cooling

<https://professormesser.link/1001030509>

- C69.** Which of the following technologies performs BEST when reading a text-based document in direct sunlight?
- A. Tablet
 - B. Smart phone
 - C. e-Reader
 - D. Augmented reality glasses

The Answer: C. e-Reader

The electronic ink or electronic paper used on e-Readers allows their screens to be viewed easily in bright light.

The incorrect answers:

A. Tablet

The LCD screen of a tablet can easily display text-based documents, but the LCD screen becomes very difficult to see in bright light or direct sunlight.

B. Smart phone

The LCD screen of a smart phone is very similar to the screen of a tablet, and bright sunlight can cause issues when viewing the screen. The e-Reader is a much better platform for reading a text-based document in the sunlight than a smart phone.

D. Augmented reality glasses

Augmented reality glasses are useful for overlaying digital information onto the physical world, but they aren't designed for reading text documents.



More information:

220-1001, Objective 1.4 - Mobile Devices

<https://professormesser.link/1001010401>

- C70.** The mouse on a desktop computer has stopped operating. Which of the following would be the best NEXT troubleshooting step?
- A. Replace the mouse
 - B. View Device Manager
 - C. Reinstall the mouse driver
 - D. Move the mouse to a different USB interface

The Answer: B. View Device Manager

The first step of the troubleshooting process is to identify the problem. Before making any changes, it's important to research the issue and gather as much information as possible.

The incorrect answers:

A. Replace the mouse

Making a hardware change to the system without any additional information would be premature. Before replacing hardware, it would be useful to know if there were any hardware errors in Device Manager or Event Viewer.

C. Reinstall the mouse driver

Making a change to the mouse driver is a modification, and it may be an unnecessary change. More information is needed before any modification should be made.

D. Move the mouse to a different USB interface

There's no evidence that the issue with the mouse is related to the USB interface. Before making any modifications, it's useful to have as much information about the problem as possible.



More information:

220-1001, Objective 5.1 - How to Troubleshoot

<https://professormesser.link/1001050101>

C71. A network administrator is viewing the interface statistics on a WAN router and has noticed that error rates are increasing. The administrator has replaced the WAN cables, but the errors continue. Which of the following tools should be used to BEST troubleshoot this issue?

- A. Loopback plug
- B. Toner probe
- C. Multimeter
- D. Cable tester

The Answer: A. Loopback plug

A loopback plug is useful when running diagnostics on a device interface. Data is sent out an interface, and the loopback plug redirects that data back to the interface. By comparing the data sent and received, the technician can determine if an interface may not be operating properly.

The incorrect answers:

B. Toner probe

Tone generators and inductive probes are useful when trying to identify the ends of a single cable. Toner probes will not provide any information about errors occurring on an existing network connection.

C. Multimeter

A multimeter can be used to check continuity or voltages, but it's not the best tool for identifying data errors on a network link.

D. Cable tester

Cable testers are used to check the wire mapping on a cable run, but most cable testers don't provide much information about the quality of the cable or network connection.



More information:

220-1001, Objective 2.8 - Network Tools

<https://professormesser.link/1001020801>

- C72.** Which part of the laser printing process requires extensive use of printer memory?
- A.** Processing
 - B.** Fusing
 - C.** Transferring
 - D.** Exposing

The Answer: **A.** Processing

The processing phase is the first phase of the laser printing process. The printer builds the entire page in memory before the rest of the printing processes can continue.

The incorrect answers:

B. Fusing

The fusing process uses heat and pressure to permanently melt the toner onto the output page. There's no additional memory used during the fusing process.

C. Transferring

The process of moving toner from the drum to the paper is the transferring process. This is a physical transfer of toner, and the printer does not use any additional memory to perform this function.

D. Exposing

The exposing process "writes" the output image onto the drum with a laser. The printer doesn't require any additional memory to perform this exposing process.



More information:

220-1001, Objective 3.11 - Laser Printers

<https://professormesser.link/1001031101>

- C73.** An administrator is trying to print some customer letters on company letterhead, but the multi-tray laser printer is printing everything on plain paper. Which of the following is the MOST likely cause of this issue?
- A. Print spooler has crashed
 - B. Printer hardware is faulty
 - C. Tray selection in the printer driver is incorrect
 - D. Printer does not support printing on letterhead

The Answer: C. Tray selection in the printer driver is incorrect

Many organizations will use a multi-tray printer with plain paper in one tray and letterhead in the other. The printer driver allows the user to configure and select certain printer functions, including the print tray that will be used during the printing process.

The incorrect answers:

A. Print spooler has crashed

The print spooler is responsible for storing print jobs, queuing them, and sending them to the printer. A print spooler crash would cause all print jobs to stop completely, regardless of which tray is specified for the output.

B. Printer hardware is faulty

Bad printer hardware would cause the printer to stop printing completely or cause the output to appear differently than the original version. In this example, the output was correct and the printer was operational.

D. Printer does not support printing on letterhead

The print driver configuration and the use of multiple printer trays is all that's needs to print to letterhead. A printer does not need to support printing to any specific type of paper.



More information:

220-1001, Objective 5.6 - Troubleshooting Printers

<https://professormesser.link/1001050601>

- C74.** Walter, a hardware technician, has been asked to purchase a system that will be used as a database server. One of the specifications for the server requires the system to detect and correct memory errors during operation. Which of the following would be the BEST option for this project?
- A. Parity memory
 - B. Single channel
 - C. ECC
 - D. SO-DIMM

The Answer: C. ECC

ECC (Error Correcting Code) memory is designed to both identify memory errors and correct them if possible. It's common to see ECC RAM (Random Access Memory) used in servers to minimize any potential downtime.

The incorrect answers:

A. Parity memory

Parity memory is similar to ECC RAM, since parity memory can identify memory errors when they occur. However, parity memory does not have a way to correct the memory errors.

B. Single channel

A motherboard that supports dual-channel or quad-channel memory will increase the memory bandwidth available. A single channel motherboard does not have this feature, and none of these channel configurations would support the detection or correction of memory errors.

D. SO-DIMM

SO-DIMM (Small Outline Dual In-line Memory Module) memory is a smaller form factor than a full size DIMM. Because of this size difference, it's common to see SO-DIMMs installed in laptops and other mobile devices. However, SO-DIMMs don't inherently provide any detection or correction of memory errors.



More information:

220-1001, Objective 3.3 - Memory Technologies

<https://professormesser.link/1001030302>

- C75.** A system administrator is replacing a cracked LCD display on a Windows laptop. Which of the following would be the MOST important component to test after this replacement?
- A. Trackpad
 - B. Wireless network
 - C. USB devices
 - D. Primary storage drive

The Answer: B. Wireless network

The antenna wires of the 802.11 wireless and Bluetooth adapters commonly wrap around the laptop display for the best possible height. When replacing the display, it's important to make sure that the wires are properly installed and have not detached from the antenna connectors on the wireless adapter or motherboard.

The incorrect answers:

A. Trackpad

The trackpad on a laptop is usually located underneath the keyboard, so it's probably the farthest away from the display than any other component. If you're going to have a problem after replacing the display, it's probably not going to be the trackpad.

C. USB devices

The externally-connected USB devices aren't usually involved when a display is replaced. Although it's certainly important to check all of your external connections after working inside the computer, the USB device connections would not be the MOST important of the available answers.

D. Primary storage drive

The primary hard drive or SSD is located inside of the computer, and it's not often involved in the replacement of an LCD display.



More information:

220-1001, Objective 1.2 - Laptop Displays

<https://professormesser.link/1001010201>

C76. Which of the following would be MOST associated with M.2?

- A. HDD
- B. Hybrid
- C. RAID
- D. SSD

The Answer: D. SSD

SSDs (Solid State Drives) are storage devices that use non-volatile memory and have no moving parts. The M.2 interface is a small form factor interface that allows for high-throughput storage in a smaller footprint than a 2.5-inch storage drive.

The incorrect answers:

A. HDD

HDDs (Hard Disk Drives) are mechanical storage devices that use spinning magnetic platters to store data. HDD form factors are 3.5" wide for desktop computers and 2.5" wide for laptop computers. HDD storage is not available in a M.2 form factor.

B. Hybrid

SSHDs (Solid State Hybrid Drives) combine the traditional spinning drive with SSD in a single device. SSHDs use the same form factors as traditional hard drives, and do not use the M.2 interface for connectivity.

C. RAID

RAID (Redundant Array of Independent Disks) arrays are commonly created with HDD or SSD devices. M.2 storage is not commonly associated with RAID.



More information:

220-1001, Objective 3.4 - Storage Devices

<https://professormesser.link/1001030401>

C77. A user in the accounting department is reporting that her smartwatch is not synchronizing with her mobile phone. The phone is powered on and unlocked, but the phone does not show the smartwatch in a list of available devices. Which of the following would MOST likely solve this issue?

- A. Enable NFC on the mobile phone
- B. Disable Wi-Fi on the mobile phone
- C. Enable Bluetooth on the mobile phone
- D. Restart the phone and smartwatch

The Answer: C. Enable Bluetooth on the mobile phone

The PAN (Personal Area Network) used for connectivity between local devices is Bluetooth, so enabling Bluetooth on the phone should allow the watch and phone to communicate to each other.

The incorrect answers:

A. Enable NFC on the mobile phone

NFC (Near-Field Communication) is designed to send small amounts of data over very short distances. NFC is not commonly used for communication between a phone and smartwatch.

B. Disable Wi-Fi on the mobile phone

Wi-Fi and Bluetooth can operate simultaneously on a mobile phone, and the phone will communicate to both 802.11 Wi-Fi devices and Bluetooth devices. Wi-Fi does not need to be disabled to use Bluetooth connections.

D. Restart the phone and smartwatch

There's no indication that the issue between the phone and watch is related to a software problem, so restarting the phone and watch would not be the most likely resolution to the communications problem.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

C78. A computer used for testing high-resolution gaming displays has a high-end video adapter and DisplayPort video connection. The computer works properly for word processing and spreadsheets, but it powers down after only a few minutes of graphics testing. Which of the following would be the MOST likely reason for this issue?

- A. The storage drive is not fast enough for the testing application
- B. The CPU fan is faulty
- C. The video display is not properly connected
- D. One of the memory modules is faulty

The Answer: B. The CPU fan is faulty

If a system powers off after some intense CPU (Central Processing Unit) utilization, then the issue is most likely associated with heat or power. Most computers have many different temperature sensors that will recognize when the system gets too hot, and they will automatically power down to prevent damaging the CPU, memory, and other hardware.

The incorrect answers:

A. The storage drive is not fast enough for the testing application
The testing application may require a fast storage drive, but a sluggish storage drive isn't going to power down if it can't keep up.

C. The video display is not properly connected
A video display that isn't properly connected will cause problems for all applications, including word processing and spreadsheets. A badly connected video display will not cause a system to power down.

D. One of the memory modules is faulty
Bad memory can cause significant problems with a computer, but those problems tend to appear as application and operating system errors, system hangs, or Windows Stop messages. Bad memory may cause a system to reboot, but it would not commonly cause it to power down completely.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- C79.** A network administrator has created a configuration that provides a server with the same IP address each time the server is started. Which of the following would BEST describe this configuration?
- A. Link-local address
 - B. IP reservation
 - C. Default gateway
 - D. APIPA

The Answer: B. IP reservation

An IP (Internet Protocol) reservation is usually configured on a DHCP (Dynamic Host Configuration Protocol) server to ensure that specific devices always receive the same IP address. This is commonly done to ensure that important network resources are always available using the same IP address.

The incorrect answers:

A. Link-local address

A link-local address is a special address that can communicate to other devices on the same local network, but the traffic cannot be routed to other subnets. A link-local address is not a method of reserving or guaranteeing a specific IP address.

C. Default gateway

The default gateway is the router that connects the local IP subnet to other networks. The default gateway does not provide a method of reserving IP addresses.

D. APIPA

APIPA (Automatic Private IP Addressing) is a way to automatically provide a link-local address if the DHCP server is unavailable. APIPA addresses are determined when a system boots, and the APIPA addresses are allocated randomly.



More information:

220-1001, Objective 2.6 - Assigning IP Addresses

<https://professormesser.link/1001020602>

C80. Which of the following BEST describes a hypervisor?

- A.** Manages the resources required for virtualization
- B.** Increases the overall CPU efficiency of a computer
- C.** Improves the throughput of network communication
- D.** Prevents malware from executing in secure areas of memory
- E.** Caches CPU transactions to provide an overall faster response time

The Answer: **A.** Manages the resources required for virtualization

A hypervisor, or virtual machine manager, is the software that manages the connection between the physical world and the virtual machine. The hypervisor is commonly associated with the management of the CPU (Central Processing Unit), memory, networking, and security on the virtual machines.

The incorrect answers:

B. Increases the overall CPU efficiency of a computer

A hypervisor does not provide any additional improvement to the CPU or overall efficiency of the normal computer operation.

C. Improves the throughput of network communication

The hypervisor is solely responsible for managing virtual machines, and it would not provide any improvement of network communication.

D. Prevents malware from executing in secure areas of memory

Anti-malware applications are the best choice for blocking potential malware. Hypervisor software does not commonly include any anti-malware functionality.

E. Caches CPU transactions to provide an overall faster response time

CPU caching is commonly handled in the processor hardware itself.

Hypervisors do not provide a response time improvement through CPU caching.



More information:

220-1001, Objective 4.2 - Client-side Virtualization

<https://professormesser.link/1001040201>

- C81.** A network technician is installing a new copper gigabit Ethernet connection, but when they plug in the network cable the status light indicators are dark. Which of the following would be the MOST likely status of the network connection?
- A.** The DHCP server has not assigned an IP address
 - B.** There is no signal on the Ethernet cable
 - C.** The Ethernet link is running at 100 megabits per second instead of 1 gigabit per second
 - D.** The primary DNS server is not responding

The Answer: B. There is no signal on the Ethernet cable

A least one light on the Ethernet adapter is commonly associated with the link status. The link light will turn on if a signal is identified on the Ethernet cable. Most Ethernet adapters will have lights to indicate the status of an Ethernet signal and the speed of the link.

The incorrect answers:

A. The DHCP server has not assigned an IP address

The assignment of an IP address is not represented by lights on the Ethernet adapter.

C. The Ethernet link is running at 100 megabits per second instead of 1 gigabit per second

If the status lights are dark, then no signal has been identified on the cable and no link speed would have been negotiated.

D. The primary DNS server is not responding

The status of a DNS (Domain Name System) server is not part of the status lights on an Ethernet adapter.



More information:

220-1001, Objective 5.7 - Troubleshooting Networks

<https://professormesser.link/1001050701>

- C82.** A finance manager is printing a contract that is designed to be printed on both sides of the page, but the printer is only providing output on one side of the paper. Which of the following options would resolve this issue?
- A. Collate
 - B. Caching
 - C. Orientation
 - D. Duplex

The Answer: D. Duplex

The duplex setting on a printer enables printing on both sides of the page without requiring a person to manually flip the pages over.

The incorrect answers:

A. Collate

Collating multiple copies together will print all of the pages in one copy of output before printing the second copy.

B. Caching

Caching is commonly used on network printers to copy all of the print job to local printer storage before starting the printing process.

C. Orientation

The orientation setting will change the output modes between portrait and landscape output.



More information:

220-1001, Objective 3.10 - SOHO Multifunction Devices

<https://professormesser.link/1001031001>

- C83.** A technician is troubleshooting a mobile phone that turns off after about an hour of normal use. Before powering off, the phone displays the message, “High temperature detected.” The phone is used inside the building at room temperature, and is not used in direct sunlight. Which of the following would be the MOST likely reason for this issue?
- A. An app is using a large amount of CPU
 - B. The Wi-Fi network is overloaded
 - C. The battery has low voltage
 - D. The mobile phone has an invalid certificate

The Answer: A. An app is using a large amount of CPU

Electronic devices generate a lot of heat, and the amount of heat from a CPU increases dramatically as it is used. Although most mobile devices will dissipate the heat using passive cooling, it's still possible to overheat the device in certain circumstances.

The incorrect answers:

B. The Wi-Fi network is overloaded

An overloaded network does not directly translate into high temperatures in a mobile device. The heat created by a network adapter is minimal, regardless of how highly utilized the network might be.

C. The battery has low voltage

Low voltage from a battery does not produce any significant source of heat. Very low voltage from a battery may cause a mobile device to shut down, but it would not show any high temperature warnings.

D. The mobile phone has an invalid certificate

Invalid certificates would affect the encryption and decryption capabilities of a mobile device. An invalid certificate does not create an additional source of heat.



More information:

220-1001, Objective 5.5 - Troubleshooting Mobile Devices

<https://professormesser.link/1001050502>

- C84.** The help desk has received a ticket that a desktop computer is reporting slow performance. The hard drive access LEDs are continuously lit, and it takes sixty seconds to load a file that previously took five seconds. The CPU and memory utilization statistics show minimal resource use. Which of the following would be the BEST next step?
- A. Upgrade the RAM
 - B. Replace the hard drive
 - C. Upgrade the BIOS
 - D. Boot to Safe Mode
 - E. Upgrade the power supply

The Answer: B. Replace the hard drive

Slow file access and a low amount of memory and CPU utilization indicates a problem with the hard drive. Performing a backup and replacing the drive should return the system to normal operation.

The incorrect answers:

A. Upgrade the RAM

Since memory utilization is low, we can rule out any out-of-memory conditions. Bad RAM would cause the system to crash and perform erratically, but the hard drive access would not be affected.

C. Upgrade the BIOS

A problem with the BIOS version would not cause drive access failures. Upgrading the BIOS would have no impact on file access issue in this scenario.

D. Boot to Safe Mode

It would be uncommon for an application or service to cause such a dramatic impact to the hard drive performance, so starting in Safe Mode would not provide any significant advantage.

E. Upgrade the power supply

There's no evidence that the power supply is faulty. Since the rest of the computer is working properly, it's unlikely that a new power supply would resolve this issue.



More information:

220-1001, Objective 5.3 - Troubleshooting Hard Drives

<https://professormesser.link/1001050301>

- C85.** A user in the marketing department was using their computer to send some email messages. The computer made an unexpected loud pop and immediately powered down. The computer would not respond to additional attempts to power it back on. Which of the following would be the MOST likely cause of this issue?
- A. Incorrect video refresh rate
 - B. Faulty capacitor
 - C. Incomplete software update
 - D. Bad memory module

The Answer: B. Faulty capacitor

Not all capacitors pop when they fail, but often a loud pop inside of a computer is related to a blown capacitor. The second symptom of the immediate powering off of the system also helps make the case that a capacitor is to blame.

The incorrect answers:

A. Incorrect video refresh rate

Setting a video adapter to a refresh rate that's different than the monitor will result in either a blank screen or very distorted screen images. An incorrect refresh rate will not make popping noises or power down a computer.

C. Incomplete software update

An incomplete software update isn't going to make any noises inside of your computer. An incomplete update may cause your computer to fail after a reboot, but it won't power down your system.

D. Bad memory module

Bad RAM (Random Access Memory) will usually cause applications or the operating system to show faults, including error messages and Windows Stop screens.



More information:

220-1001, Objective 5.2

Troubleshooting Common Hardware Problems

<https://professormesser.link/1001050201>

- C86.** A manager in the shipping department needs to connect their laptop to wireless portable speakers while in the office. Which of these should be configured on their laptop?
- A. Tethering
 - B. Bluetooth
 - C. NFC
 - D. IR

The Answer: B. Bluetooth

Most external portable speakers use Bluetooth to receive audio signals from a mobile device. Bluetooth has the best fit for connectivity options, distance requirements, and bandwidth for sending audio data.

The incorrect answers:

A. Tethering

Tethering is used when a laptop needs to use resources that would normally be accessible from a smart phone, such as Internet access. The laptop would first connect to the mobile device using a USB cable or Bluetooth. Once connected, the laptop could access the Internet over this tethered link.

C. NFC

NFC (Near Field Communication) is a short-distance low-bandwidth network connection designed for temporary use. For example, the NFC connection in a smart phone or smart watch at a store checkout can be used as a payment method.

D. IR

IR (Infrared) communication is a line-of-sight network communication that commonly sends low-bandwidth data. Today, IR is commonly used to control entertainment systems or televisions.



More information:

220-1001, Objective 1.5 - Mobile Device Accessories

<https://professormesser.link/1001010502>

- C87.** A technician has two hard disk drives that need to be configured redundantly, and all information should be duplicated across physical drives. Which of the following should be configured?
- A. RAID 5
 - B. RAID 1
 - C. Dynamic disks
 - D. RAID 0

The Answer: B. RAID 1

The RAID 1 (Redundant Array of Independent Disks) array keeps an exact duplicate of data across multiple drives. If one drive fails, the other drive containing the duplicated data continues to provide access to the data.

The incorrect answers:

A. RAID 5

RAID level 5 provides redundancy through the use of parity. RAID 5 does not duplicate information across physical drives.

C. Dynamic disks

Dynamic disks are a type of Windows storage type that supports advanced features, such as RAID. A Windows dynamic disk does not provide any redundancy or duplication of data, although dynamic disks can be configured with additional features, such as RAID 1 or RAID 5 redundancy.

D. RAID 0

RAID 0 does not provide any redundancy or duplication of data. If a single drive in RAID 0 was to fail, the data on the array would be unavailable and recovery of the data would require a recent backup.



More information:

220-1001, Objective 3.4 - RAID

<https://professormesser.link/1001030402>

- C88.** A system administrator has connected a desktop computer to a new LCD monitor. After connecting the monitor, all of the desktop icons and windows appear oversized and larger than usual. Which of the following would be the BEST way to correct this issue?
- A. Modify the display resolution
 - B. Use a different LCD display
 - C. Replace the monitor cable
 - D. Restart the desktop computer

The Answer: A. Modify the display resolution

The display resolution determines how many horizontal and vertical pixels are used when displaying information on a screen. If the resolution is set relatively low, then the screen information will appear larger than a higher resolution. To correct this oversized view, the system administrator will need to configure a higher resolution setting on the desktop computer.

The incorrect answers:

B. Use a different LCD display

Although it's possible that a different LCD display with a different native resolution may resolve this issue of oversized text and graphics, it's a much more cumbersome solution than the few seconds that it would take to configure a different display resolution on the computer.

C. Replace the monitor cable

A bad monitor cable would cause the image to dropout or appear difficult to read, and it would not cause the display images to be oversized.

D. Restart the desktop computer

Restarting the desktop computer would show the same resolution after the restart. The desktop operating system would need to be configured with a different resolution before the image on the screen would change.



More information:

220-1001, Objective 5.4

Troubleshooting Video and Display Issues

<https://professormesser.link/1001050401>

- C89.** A company is developing a product that will monitor a user's heart rate and sleep patterns. Which category BEST fits this type of product?
- A. Augmented reality
 - B. Tablet
 - C. Smart phone
 - D. Wearable

The Answer: D. Wearable

Wearable products are designed to be worn on the body and can constantly monitor health information and other nearby sensors. Fitness monitors are a common wearable technology.

The incorrect answers:

A. Augmented reality

Augmented reality products can blend together the physical world with the digital world. A common type of augmented reality are digital glasses that can overlay travel information and directions onto physical streets and buildings.

B. Tablet

A tablet can often be used to view the information collected by the wearable technology, but it's difficult to constantly monitor a user's heart rate using a tablet.

C. Smart phone

Smart phones are also used to view information gathered by wearable products, but even smart phones don't get close enough to a person to constantly monitor heart rates and sleep patterns.



More information:

220-1001, Objective 1.4 - Mobile Devices

<https://professormesser.link/1001010401>

- C90.** A system administrator is installing a new LCD projector in the company conference room. Which of the following would MOST likely be used with this projector?
- A. Lightning
 - B. UTP
 - C. Coaxial
 - D. HDMI

The Answer: D. HDMI

HDMI (High-Definition Multimedia Interface) is a common interface for transmitting audio and video to televisions, displays, and projectors.

The incorrect answers:

A. Lightning

The Apple Lightning connector is used for mobile devices to connect to external peripherals. Although the lightning connector could be used to connect an Apple mobile device to an LCD projector, it's much more common to use an HDMI connector.

B. UTP

UTP (Unshielded Twisted-Pair) cabling is commonly used for Ethernet networks, and it is not a common cable type for video output.

C. Coaxial

Coaxial cables can be used for some video output formats, but a much more common video interface type would be HDMI.

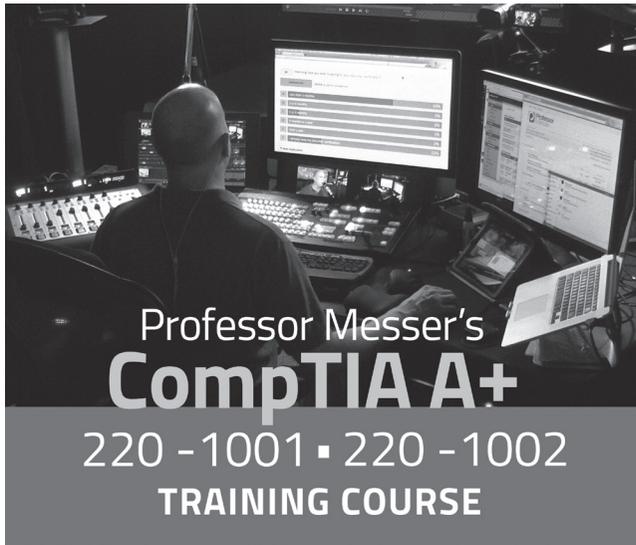


More information:

220-1001, Objective 3.1 - Video Cables

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