

# Exam Practice 1: Mobile Devices

## Question 1

A support technician replaces a Wi-Fi card in a laptop. The following day, the laptop user states that the company's Wi-Fi network signal is weaker than it was before. What does the technician find to be the likely problem?

- The incorrect software drivers are installed.
- The antenna is not connected.
- The Wi-Fi is not compatible with the new card.
- The Wi-Fi card is not seated properly.

**Correct Answer:** The antenna is not connected.

## Explanation

When replacing a Wi-Fi card, it is important to remember to connect the **antenna**. The connection is usually a wire with a terminating end that snaps onto the card. A Wi-Fi card is seated into a laptop and is usually a peripheral component interconnect express (PCIe) type connector. Having the card incorrectly seated would render the Wi-Fi card unrecognizable and not function at all. Devices within a computer require software drivers to function. Since the system identified the card properly, then the support technician installed the correct drivers. There are varying specifications for Wi-Fi. Since the Wi-Fi is receiving a signal, the Wi-Fi card is compatible with the company's Wi-Fi system.

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## Question 2

A manager needs to electronically sign many documents while using a laptop. Precision is not required, and there is very little money in the budget to spend. What does the manager choose to use as a solution?

- Drawing pad
- Trackpad
- Touch pen
- Touchpad

**Correct Answer:** Touchpad

## Explanation

A **touchpad** is a navigation device that is built into laptops and acts as a mouse. Using a finger with the touchpad can cost-efficiently accomplish the manager's needs. Most drawing pads and some touch screens can be used with a touch pen or stylus rather than fingers. A stylus allows for more precise control and can be used for handwriting and drawing. A trackpad acts as a mouse and is a larger-format device attached as a peripheral rather than

built into a laptop. It may also be used on desktops. A drawing pad refers to a large-format touch device attached as a peripheral. These are also called graphics tablets, as they are used in digital art applications.

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### Question 3

A user has a newly issued smartphone that has corporate communication software installed. What can the user expect to sync while using Microsoft Exchange?

- Texts
- Contacts
- Email
- Calendar

**Correct Answers:** Contacts, Email, Calendar

### Explanation

Most **email** systems store messages on the server, and the client device is used to manage them. A client device that uses technology such as ActiveSync can store a local copy. A **contact** is a record with fields for name, address, email address(es), phone numbers, notes, and more. Contacts are synced with Exchange ActiveSync. A **calendar** item is a record with fields for appointment or task information, such as subject, date, location, and participants. Calendars are synced with Exchange ActiveSync. **Texts** are messages that are sent via cellular service. While there are sync methods available, they are not synced with Exchange.

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### Question 4

A remote connection for users to access a company's private network requires access from an external IP. How might a laptop user test this connection if they are currently connected to the company's internal network?

- Enable pairing.
- Update the PRL.
- Use the correct PIN.
- Use a hotspot.

**Correct Answer:** Use a hotspot.

### Explanation

A smartphone or tablet can be configured as a personal **hotspot** to share its cellular data connection with other computer devices. This approach can be used to simulate being on an external network. To connect a peripheral device via Bluetooth, the Bluetooth radio on each device must be put into discoverable mode, which is also known as **pairing** mode. When

using Bluetooth, the pairing system should automatically generate a passkey or **PIN** code when a connection request is received by a peripheral device. Information that a cellular radio needs to connect to a network is provided as a **preferred roaming list (PRL)**. Updating the PRL will update the list.

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### Question 5

A gamer wants to connect a headset to a new gaming laptop. What connection options does the gamer have? (Select three.)

- USB
- 3.5 mm jack
- Nib
- Bluetooth

**Correct Answers:** USB, 3.5 mm jack, Bluetooth

### Explanation

A **Bluetooth** wireless radio creates a short-range personal area network (PAN) to share data with a PC, connect to a printer, and connect to peripherals such as headsets. The connection occurs through what is known as pairing. A **USB** connection is a popular connection for many computer peripherals. This includes mice, keyboards, headsets, gamepads, and more. A **3.5 mm jack** is a standard headphone/speaker jack size found in audio headsets, headphones, microphones, and more. A **nib** is not a connector type. Touch pens designed for use with drawing pads have removable and changeable nibs for use as different pen/brush types.

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### Question 6

A user complains that a laptop is slow. A technician concludes that the best solution is to remove the current mechanical disk drive with a faster solid-state drive. The technician opts to back up the user data and install a fresh operating system on a new drive. Which approach defines the technician's steps?

- Migration
- Clone
- Upgrade
- Replacement

**Correct Answer:** Replacement

### Explanation

A **replacement** drive approach only has the data backed up from the old drive. The technician then fits the new drive to the laptop and reinstalls all software. Then, the technician can restore user data from the backup. An **upgrade** is a general term, and with software, an upgrade occurs between software versions. With hardware, newer hardware replaces older hardware. While a hardware upgrade occurs in the scenario, it does not define the technician's steps. **Migration** means using backup software to create an image of the old drive and storing it on a USB or other type of media. **Cloning** a disk is similar to migration in that it makes a copy of an entire drive to another storage device.

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### Question 7

A company offers a bring your own device (BYOD) program at work. Several users approach the company in an effort to receive reimbursement for changing personal phones to the company's carrier. This will be done by swapping out a subscriber identity module (SIM) card in devices with which network type?

- CDMA
- HSPA
- NFC
- LTE

**Correct Answer:** LTE

### Explanation

**Long-term evolution (LTE)** provides an upgrade from CDMA. All 4G and 5G cellular data connections require a SIM card. **Code division multiple access (CDMA)** means that the handset is directly managed by the provider, and there is no removable SIM card. **High Speed Packet Access (HSPA)** provides improved data rates on GSM networks. **Near-field communications (NFC)** allow a mobile device to use a close-range service such as contactless payments.

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### Question 8

A laptop user has a slim laptop that has very few external ports. As there is no Ethernet port on the laptop, it only uses wireless. The user would like a low-cost solution that allows for an Ethernet connection when not traveling. What does IT purchase for the user?

- Serial connection
- Lightning cord
- Docking station
- Port replicator

**Correct Answer:** Port replicator

## Explanation

A **port replicator** either attaches to a special connector on the back or underside of a laptop or is connected via USB. It provides a full complement of ports for devices such as keyboards, monitors, mice, and network connections. A **docking station** is a sophisticated port replicator. When docked, a portable computer can function like a desktop machine or use additional features, such as a full-size expansion card. Most iPhone and iPad Apple devices use the proprietary **Lightning** connector. This would be for connecting an iOS device for purposes including charging. **Serial** is one of the oldest and simplest computer interfaces. While not many mobile devices have hardware serial ports, the software serial port is often used.

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## Question 9

A tablet user connects a Bluetooth keyboard. What would be expected in the pairing process?

- Enter a PIN.
- Perform multifactor authentication.
- Test connectivity.
- Perform a sync.

**Correct Answer:** Enter a PIN.

## Explanation

When connecting devices with Bluetooth, a security measure of entering a **PIN** code is usually part of the process. **Testing connectivity** of a Bluetooth device would occur after a connection is made. With a keyboard, typing in a word processing program would be a valid test. **Multifactor authentication** means that the user must submit at least two different kinds of credentials. This would be used to authenticate access to a system but not to pair Bluetooth devices. Performing a **sync** is a process that occurs when devices that share data are connected. Examples are folder locations, contacts, and calendar appointments.

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## Question 10

A technician troubleshoots a laptop's direct connectivity to the organization's access points connected to an internal network. Troubleshooting starts by removing a screw-down panel to access and examine internal components. Which components does the technician test?

- Mini PCIe
- Wireless card
- Modem
- mSATA

**Correct Answer:** Wireless card

### Explanation

A **wireless card** is an internal component of a laptop that provides Wi-Fi connection capabilities. A wireless card would be seated within the laptop and have an antenna connection. A **modem** is a communication device; however, it is not the correct component in this case. The modem would not connect to an access point, as detailed in the scenario. A **mini peripheral component interconnect express (PCIe)** card is a form factor that many adapter cards use. These form factors include wireless cards, Bluetooth cards, and more. A **mini serial advanced technology attachment (mSATA)** card is a storage device, like a solid-state drive (SSD). An mSATA uses far less power and has a smaller footprint than a traditional SSD drive.

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### Question 11

A technician upgrades the memory in a laptop computer. Which interface does the memory have?

- mSATA
- PCIe
- SODIMM
- M.2

**Correct Answer:** SODIMM

### Explanation

A smaller form factor called **small outline DIMM (SODIMM)** packages laptop random access memory (RAM). The memory typically fits into slots that pop up at a 45-degree angle. A technician can provision a solid-state drive (SSD) in an adapter card form factor. These often use an **M.2** interface. An M.2 port is oriented horizontally. The **mini serial advanced technology attachment (mSATA)** form factor allows an SSD packaged as an adapter card to plug into the motherboard's combined data and power port. Modern SSDs often use the **peripheral component interconnect express (PCIe)** bus directly. Where SATA uses the advanced host controller interface (AHCI) to communicate with the bus, PCIe-based SSDs use the non-volatile memory host controller.

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### Question 12

IT systems administrators for a company have been busy configuring a fleet of new smartphones for users. Instructions that the administrators follow to configure the devices include using a host address and entering a domain as an optional parameter. Which corporate email service does the company use?

- Gmail
- Google Workspace
- Microsoft 365
- Microsoft Exchange

**Correct Answer:** Microsoft Exchange

### Explanation

To manually configure a **Microsoft Exchange** account, parameters such as a host address as well as the choice of whether to use transport layer security (TLS) are required. There is often also an optional field for a domain, but this is usually left blank. A Microsoft digital identity is used to access cloud subscriptions for the Office productivity software suite and the OneDrive cloud storage service, which are known as **Microsoft 365**. The configuration only uses a username and password. With **Google Workspace**, a Google account grants access to Google's Workspace productivity software and other Google services. This configuration does not use a domain. A **Gmail** account is a free account used with the Google Workspace landscape. Configuration does not use a domain.

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### Question 13

A user contacts an IT help desk to report a problem with a laptop computer. The complaint is that the laptop is very hot to the touch when typing. The user also states that the laptop does not sit correctly, as the bottom of the laptop has a slight bulge. Which component does the help desk technician determine to be the problem?

- Keyboard
- Memory
- SSD
- Battery

**Correct Answer:** Battery

### Explanation

Laptop computers use removable, rechargeable Lithium-ion (Li-ion) **battery** packs. Li-ion batteries are typically available in 6-, 9-, or 12-cell versions. A problematic battery can overheat and expand. A **keyboard** is an input device. Therefore, a laptop keyboard does not usually overheat. However, the user noticed heat coming from the laptop in this case. Small outline dual inline **memory** modules (SODIMMs) package the laptop's double data rate synchronous dynamic random access memory (DDRx SDRAM). Laptop RAM can become very hot; however, it would not cause the battery to expand. A **solid-state drive (SSD)** does not get as hot as a traditional magnetic drive. Even so, an SSD would not cause the battery to expand.

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### Question 14

A smartphone user tries to connect a new set of earbuds. What is the first step that the user does with the phone?

- Perform a PRL update.
- Enable pairing.
- Enable Bluetooth.
- Find a device for pairing.

**Correct Answer:** Enable Bluetooth.

### Explanation

A **Bluetooth** wireless radio creates a short-range personal area network (PAN) to share data and connect to peripherals. Bluetooth needs to be enabled before pairing can begin. To connect a peripheral device via Bluetooth, the Bluetooth radio on each device must be put into discoverable mode, which is also known as **pairing mode**. Once a phone has Bluetooth and pairing mode enabled, a list of nearby devices will be listed for connecting. Selecting a device will begin the pairing process. Information that a cellular radio needs to connect to a network is provided as a **preferred roaming list (PRL)**. An update would update the list.

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### Question 15

A small shop uses a new point of sale system that allows for touchless payments. The business owner, who is not so tech-savvy, is amazed at the process. As the owner sets up the system, what technology does the system installer mention the payments use?

- NFC
- Cellular
- Wi-Fi
- Bluetooth

**Correct Answer:** NFC

### Explanation

Many mobile devices have **near-field communication (NFC)** chips built in. NFC allows for very short-range data transmission. Credit card payments can use this technology. A **Bluetooth** wireless radio creates a short-range personal area network (PAN) to share data with a PC, connect to a printer, and even connect to automobiles. The connection occurs through what is known as pairing. Every laptop, smartphone, and tablet supports a **Wi-Fi** radio. While some automobiles also offer built-in Wi-Fi, this technology is not used to pair two devices. **Cellular** data networking means connecting to the internet or services via a device's cellular radio and the phone/system network provider.

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### Question 16

Users at an organization prefer that any mobile devices deployed for company use have location services disabled. IT administrators agree and configure which option?

- Preferred roaming list
- Global System for Mobile Communication
- Mobile data options
- Global Positioning System

**Correct Answer:** Global Positioning System

### Explanation

**Global Positioning System (GPS)** is a means of determining the device's latitude and longitude based on information received from orbital satellites via a GPS sensor. **Global System for Mobile Communication (GSM)** allows subscribers to use a removable subscriber identity module (SIM) card to use an unlocked handset with their chosen network provider. Information that a cellular radio needs to connect to a network is provided as a **preferred roaming list (PRL)**. **Mobile data options** allow a user to enable or disable Wi-Fi, cellular service, Bluetooth, and all services together (known as airplane mode).

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### Question 17

A consumer new to iOS devices is unsure of the type of cable required to charge their new iPhone 14. The consumer would like an extra cable to keep in a home office. What type of proprietary cable does the consumer look to purchase?

- USB
- LCD
- Lightning
- Serial

**Correct Answer:** Lightning

### Explanation

iPhones, from Generation 5 through 14, and older iPad devices use the proprietary **Lightning** connector. Some of the latest iPhone and iPad models, such as the iPhone 15 and newer, and iPad Pro, use USB-C. Modern Android-based smartphones and tablets use the **USB-C** connector for wired peripherals and charging. The Micro-B USB and Mini-B connector form factors are only found on old devices. **Serial** is one of the oldest and simplest computer interfaces. While not many mobile devices have hardware serial ports, the software serial port is often used for programming and connectivity. Most mobile devices use a flat-panel screen technology based on a type of **liquid crystal display (LCD)**. A liquid crystal display is not a cable type.

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### Question 18

A company plans on upgrading a fleet of mobile phones. Upon inspection, the phones that will be retired do not utilize a SIM card. What does the company learn about the phones that have been in use?

- The phones are 4G.
- The phones are 3G.
- The phones are CDMA.
- The phones are LTE.

**Correct Answer:** The phones are CDMA.

### Explanation

3G defines Universal Mobile Telecommunications Service (UMTS) on a Global System for Mobile Communications (GSM) handset or Evolution-Data Optimized (EV-DO) on CDMA networks, working at up to around 3 Mb/s. **Code division multiple access (CDMA)** means that the handset is directly managed by the provider, and there is no removable SIM card. **Long-term evolution (LTE)** provides an upgrade from CDMA. All 4G and 5G cellular data connections require a SIM card. **4G** phones use a SIM card and have a maximum downlink of 300 Mb/s in theory, with around 20–90 Mb/s typical of real-world performance.

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### Question 19

An artist looks to achieve greater precision when creating digital drawings. Which input device will help achieve this goal?

- Touchpad
- Trackpad
- Touch pen
- Touch screen

**Correct Answer:** Touch pen

### Explanation

Most drawing pads and some touch screens can be used with a **touch pen** or stylus rather than fingers. A stylus allows for more precise control and can be used for handwriting and drawing. A **trackpad** acts as an input device and is a larger-format device attached as a peripheral rather than built into a laptop. A **touch screen** is also referred to as a digitizer because of the way it converts analog touch input to digital software instructions. A digitizer

sits above a display panel. A **touchpad** is a navigation device that is built into laptops and acts as a mouse.

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### Question 20

A consumer buys the cheapest laptop that they can possibly find. Which component did the consumer choose not to include in the laptop that would help drive down the cost?

- Webcam
- Microphone
- Touchpad
- Speaker

**Correct Answer:** Webcam

### Explanation

While just about every laptop has one, it is possible to buy a laptop without a built-in **webcam**. While the cost-saving may not be significant, having one less component drives down the cost. **Speakers** are standard on any modern laptop. Even a budget laptop will include a set of built-in speakers. A **microphone** is a standard internal device on a laptop. Even a budget laptop will include a microphone. A **touchpad** is a standard component on any laptop. As mouse input is required, even a budget laptop will include a touchpad.

## Exam Practice 2: Networking

### Question 1

An infrastructure engineer requests that a specific computer always gets a particular IP address when it connects to the network. They do not keep proper records of IP addresses, so they would rather not set the host's IP with a static address. What can the engineer use to ensure this host gets the requested address?

- DHCP scope
- DHCP client
- DHCP lease
- DHCP reservation

**Correct Answer:** DHCP reservation

**Explanation:** A Dynamic Host Configuration Protocol (DHCP) reservation is a configuration that assigns a reserved or persistent IP address to a given host based on its hardware (MAC) address or other ID.

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## Question 2

This protocol makes files available for download across a network and uses ports 20 and 21.

- Secure Shell
- Simple Mail Transfer Protocol
- Telnet
- File Transfer Protocol

**Correct Answer:** File Transfer Protocol

**Explanation:** File Transfer Protocol (FTP) makes files available for download across a network. It utilizes two ports. TCP Port 21 establishes the connection between two computers (control connection), and TCP Port 20 is the port the file(s) are transferred across (data connection).

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## Question 3

A network technician installs wireless access points (APs) in an office and would like to use power over Ethernet (PoE) to power the APs. The current network infrastructure is not capable of doing this. What would the network technician need to install to augment the power requirements for PoE APs?

- Patch panel
- Firewall
- Managed switch
- Power injector

**Correct Answer:** Power injector

**Explanation:** If a switch does not support PoE, a network technician can use a power injector. One port on the injector connects to the switch port. The other port connects to the device.

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## Question 4

This protocol facilitates requests for an IP address and other network settings and uses ports 67 and 68.

- Lightweight Directory Access Protocol

- Network Basic Input/Output System
- Domain Name System
- Dynamic Host Configuration Protocol

**Correct Answer:** Dynamic Host Configuration Protocol

**Explanation:** Dynamic Host Configuration Protocol (DHCP) utilizes two ports. DHCP clients use UDP port 68 to request an IP address configuration from a server. The server responds using UDP port 67 to provide clients with an IP address configuration.

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### Question 5

A user calls to report that they cannot connect to the internet and various other internal resources from their laptop. After a technician asks them what IP address their Windows laptop has, they report it has an address of 169.254.0.115. What problem is the user's laptop having?

- The laptop has a misconfigured default gateway address.
- The laptop has a misconfigured static IP address.
- The laptop has a Class A private address.
- The laptop cannot get an address from the DHCP server.

**Correct Answer:** The laptop cannot get an address from the DHCP server.

**Explanation:** Automatic private IP addressing (APIPA) is a mechanism for Windows hosts that cannot contact a DHCP server to revert to using an address from the range 169.254.x.y. This is also called a link-local address.

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### Question 6

A developer asks that any network requests made to the hostname dev23.company.net get directed to a specific IP address of 10.130.25.15. What type of record will the developer need to create?

- (AAAA) record
- (TXT) record
- (MX) record
- (A) record

**Correct Answer:** (A) record

**Explanation:** In the Domain Name System (DNS), an A record resolves a hostname to an IPv4 address. This will be the record type that the developer will need to create on the DNS server.

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### Question 7

What are the main components of authentication, authorization, and accounting that securely and adequately connect devices to a network? (Select three.)

- DHCP server
- Network access server/point
- AAA server
- Supplicant

**Correct Answers:** Network access server/point, AAA server, Supplicant

**Explanation:** The supplicant is the device requesting access, such as a user's PC or laptop. Network access servers (NAS) or network access points (NAP) are network access appliances, such as switches, access points, and VPN gateways. These are also called AAA clients or authenticators. The AAA server is the authentication server positioned within the local network.

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### Question 8

A growing manufacturing company wants to better manage all of its controlled systems in various plants around the city. After speaking with a technology vendor, what type of system would they recommend investing in for this solution?

- IoT
- Proxy servers
- Load balancers
- SCADA

**Correct Answer:** SCADA

**Explanation:** A supervisory control and data acquisition (SCADA) system typically runs as software gathering data and managing plant devices and equipment with embedded PLCs, referred to as field devices.

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### Question 9

A penetration tester must infiltrate a company's facility to capture all the network traffic from a particular set of PCs over a physical network cable. The tester can only access the intermediate distribution frame (IDF) closets into which all devices are patched. What tool can the tester utilize to accomplish their goal?

- Cable tester
- Wi-Fi analyzer
- Toner probe
- Network tap

**Correct Answer:** Network tap

**Explanation:** A network tap intercepts the signals passing over a cable and sends them to a packet or protocol analyzer.

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### Question 10

A new IT support technician troubleshoots a user's report of intermittent network connectivity. After inspecting the workstation, they see a label above the station's RJ-45 port wall connection. This label is likely to identify what device?

- Switch
- Hub
- Firewall
- Patch panel

**Correct Answer:** Patch panel

**Explanation:** In most types of office cabling, the computer is connected to a wall port and, via cabling running through the walls, to a patch panel.

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### Question 11

A support desk technician must make a custom-length Ethernet patch cable for a user's desk setup. What tool do they need to create this cable? (Select all that apply.)

- Punchdown tool
- Snips
- Crimper
- Cable stripper

**Correct Answers:** Snips, Crimper, Cable stripper

**Explanation:** A crimper fixes a male jack to a patch cord. A cable stripper scores the outer jacket to remove it. Snips are needed to cut the cable to size and trim the filler inside the cable.

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### Question 12

This protocol provisions secure websites and services and uses port 443.

- HyperText Transfer Protocol
- Internet Mail Access Protocol
- Post Office Protocol 3

- HyperText Transfer Protocol Secure

**Correct Answer:** HyperText Transfer Protocol Secure

**Explanation:** HyperText Transfer Protocol Secure (HTTPS) delivers secure websites and services and uses TCP port 443. Data encrypts over this connection between the client and server.

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### Question 13

Which well-known mailbox access protocols utilize mailbox servers to allow the user's client email software to retrieve messages from the mailbox? (Select two.)

- DNS
- FTP
- POP3
- IMAP

**Correct Answers:** POP3, IMAP

**Explanation:** The Post Office Protocol (POP3) and the Internet Message Access Protocol (IMAP) are the two main mail retrieval protocols used by email clients.

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### Question 14

A managed service company works with a client to enumerate and gather all the detailed events, errors, and notifications produced from various network devices. What solution would the company suggest in this particular case?

- Remote Desktop Protocol
- AAA server
- Load balancer
- Syslog appliance

**Correct Answer:** Syslog appliance

**Explanation:** Syslog is a protocol and supporting software that facilitates log collection from distributed systems. A Syslog collector (appliance or server) listens on UDP port 514 for these log messages.

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### Question 15



A company is building a new office space and data center. They would like network segmentation to ensure that only certain servers and workstations can access sensitive data. What type of devices will be the foundation of that type of network?

- Unmanaged switches
- Firewalls
- Ethernet hubs
- Managed switches

**Correct Answer:** Managed switches

**Explanation:** Managed switches contain internal software to configure security settings, such as VLANs, which enable the segmentation of network devices and traffic.

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### Question 16

A logistics company wants to streamline its workflow and track shipments as they move in and around its facilities without barcode scanners. What type of personal area networking solution would best suit this requirement?

- NFC
- Wi-Fi 5
- Bluetooth
- RFID

**Correct Answer:** RFID

**Explanation:** Radio-frequency ID (RFID) encodes information into passive tags, which can be energized and read by radio waves from a reader device, often from a distance and without a direct line of sight.

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### Question 17

Which Institute of Electrical and Electronics Engineers (IEEE) wireless standards operate in the 2.4 GHz wireless frequency band? (Select three.)

- 802.11a
- 802.11n
- 802.11g
- 802.11b

**Correct Answers:** 802.11n, 802.11g, 802.11b

**Explanation:** The IEEE 802.11b and 802.11g standards operate exclusively in the 2.4 GHz band. The 802.11n standard can operate in both the 2.4 GHz and 5 GHz bands. The 802.11a standard operates only in the 5 GHz band.

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### Question 18

A vast majority of rural residents in the United States still use this internet connection type that utilizes the public switched telephone network (PSTN).

- Satellite
- WISP
- Wi-Fi
- DSL

**Correct Answer:** DSL

**Explanation:** A digital subscriber line (DSL) uses the higher frequencies available in copper telephone lines (the PSTN) as a communications channel to provide internet service.

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### Question 19

A network engineer gets a report that a growing number of wireless devices cannot obtain an IP address from the Wi-Fi network. They can see the network name (SSID), and authentication is successful, but devices say that they cannot obtain an address. What is most likely the problem?

- There is no DNS (A) record for the devices.
- The VLAN for the wireless network cannot be accessed.
- The DHCP server has run out of reservations.
- DHCP has no more addresses available.

**Correct Answer:** DHCP has no more addresses available.

**Explanation:** This problem is due to the Dynamic Host Configuration Protocol (DHCP) having no more addresses available in its scope to lease to clients. To solve this, the engineer should extend the scope or shorten the lease time.

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### Question 20

What characteristics of Wi-Fi 6 (802.11ax) allow for increased bandwidth and support for modern networks? (Select three.)

- Typically supports up to four simultaneous clients
- Orthogonal frequency division multiple access
- Designed to work in both the 2.4 GHz and 5 GHz bands
- Uplink and downlink MU-MIMO

**Correct Answers:** Orthogonal frequency division multiple access, Designed to work in both the 2.4 GHz and 5 GHz bands, Uplink and downlink MU-MIMO

**Explanation:** Wi-Fi 6 (802.11ax) introduces key technologies like Orthogonal Frequency Division Multiple Access (OFDMA) for greater efficiency. It also adds uplink MU-MIMO to the existing downlink capabilities, allowing multiple clients to send data to the access point simultaneously. Finally, it is designed to operate in both the 2.4 GHz and 5 GHz bands.

## Exam Practice 3: Hardware

### Question 1

A technician uses a connector that carries visual displays from a personal computer to the monitor. It consists of a cable and connector that is usually blue. What is this called?

- eSATA
- DVI
- Molex
- VGA

**Correct Answer:** VGA

**Explanation:** A video graphics array (VGA) is a 15-pin port that was a standard analog video interface for PC devices for a very long time.

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### Question 2

A technician is using a printer that has text-to-raster conversion. Which of the following is this?

- Infrastructure mode
- PCL
- PostScript
- PDL

**Correct Answer:** PDL

**Explanation:** A page description language (PDL) creates a raster file from the print commands sent by the software application. A raster file is a dot-by-dot description of where the printer should place ink. PostScript and PCL are specific types of PDLs.

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### Question 3

What type of printer uses a heating element to create the image on the paper?

- Inkjet
- Impact
- Laser
- Thermal

**Correct Answer: Thermal**

**Explanation:** A thermal printer is a general term for any device that uses a heating element to create images on paper. It uses heat-sensitive paper that the printer's feed assembly friction-feeds through the print mechanism.

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### Question 4

A video gamer is using a product designed to record footage from computer games. What is this called?

- NIC
- Sound card
- Video card
- Capture card

**Correct Answer: Capture card**

**Explanation:** Capture cards record video input and save it as a movie or streaming media file. Some work with PC games, while others record from a game console or live camera using HDMI sources.

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### Question 5

Which of the following allows printers to connect using a Plug and Play that installs the driver automatically?

- Wireless
- Ethernet
- RJ45 port
- USB

**Correct Answer: USB**

**Explanation:** USB allows for a Plug and Play connection. The device plug connects to the printer's USB port and the host plug connects to a free port on the computer, which then automatically detects the device and installs the driver.

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## Question 6

Which of the following causes the ink in an inkjet printer to break up into small drops, which are given an electrical charge when they leave the print head and can either stick to the paper or be deflected?

- Transfer roller
- Thermal method
- Imaging drum
- Epson design

**Correct Answer:** Epson design

**Explanation:** The Epson design uses a piezoelectric element in the nozzle, which changes shape when a voltage is applied. This creates a steady stream of ink drops that can be charged and deflected.

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## Question 7

What are the manufacturer's specific recommendations for cleaning and maintaining laser printers? (Select two.)

- Use a compressed air blaster.
- Use a domestic vacuum.
- Use a toner-safe vacuum.
- Wipe with a soft cloth.

**Correct Answers:** Use a toner-safe vacuum., Wipe with a soft cloth.

**Explanation:** A technician should use a toner-safe vacuum to clean the interior, as a domestic vacuum's filter cannot trap fine toner particles and its motor can generate damaging static electricity. Wiping dust and toner away with a soft, lint-free cloth is recommended for both the interior and exterior.

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## Question 8

A user wants to mitigate the risk of data loss by using a disk that underpins the mass storage system and provides fault tolerance. What can the user use?

- NVMe
- SSD
- mSATA
- RAID

**Correct Answer: RAID**

**Explanation:** A redundant array of independent disks (RAID) is an array of drives that appears as a single storage volume. Certain RAID levels are designed specifically to provide data redundancy and fault tolerance, protecting against drive failure.

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## **Question 9**

**A user replaces an older laptop that has a thin film transistor (TFT) display that uses crystals that rotate. Which TFT technology does the display use?**

- Twisted nematic (TN)
- Organic LED (OLED)
- Vertical alignment (VA)
- In-plane switching (IPS)

**Correct Answer: In-plane switching (IPS)**

**Explanation:** In-plane switching (IPS) uses crystals that rotate rather than twist. The main benefit is to deliver better color reproduction at a wider range of viewing angles compared to older TN panels.

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## **Question 10**

**What channel system requires support from the CPU, memory controller, and motherboard but not from the RAM devices?**

- Triple-channel
- ECC RAM
- Single-channel
- Dual-channel

**Correct Answer: Dual-channel**

**Explanation:** A dual-channel memory controller has two 64-bit pathways to the CPU, allowing it to send 128 bits of data per transfer. This capability is dependent on the motherboard and CPU, not the individual RAM modules, which are standard.

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## **Question 11**

**Which redundant array of independent disks (RAID) applies a strategy that is the simplest way of protecting a single disk against failure by using a mirrored drive configuration with two disks?**

- RAID 5
- RAID 10
- RAID 0
- RAID 1

**Correct Answer: RAID 1**

**Explanation:** RAID 1 uses two disks where each write operation is duplicated on the second disk (mirroring). If one disk fails, the other takes over, providing a simple and effective method of redundancy.

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## **Question 12**

**A technician uses a storage device containing non-volatile flash memory to replace the hard drive since the speed is much greater. What is this called?**

- NVMe
- M.2
- mSATA
- SSD

**Correct Answer: SSD**

**Explanation:** A solid-state drive (SSD) uses flash memory technology to implement persistent mass storage. Flash memory performs much better than the mechanical components used in traditional hard drives.

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## **Question 13**

**A user is trying to connect a gaming console to a television. What type of connector should the user utilize?**

- Adapter
- Lightning port
- USB 3.0
- HDMI

**Correct Answer: HDMI**

**Explanation:** A high-definition multimedia interface (HDMI) is the most widely used video interface for consumer electronics. It supports both video and audio through a single cable.

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## Question 14

A manager uses a dot matrix printer that uses specific types of paper. Which of the following papers does the printer use? (Select two.)

- Thermal paper
- Replaceable ribbon
- Tractor-fed paper
- Impact paper

**Correct Answers:** Tractor-fed paper, Impact paper

**Explanation:** Dot matrix printers use physical impact, which allows them to use multi-part impact paper (carbonless copy paper) to create duplicates. They also commonly use tractor-fed paper (continuous paper with holes on the sides) for printing long reports.

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## Question 15

A user needs to change the direction of the viewing of a page. What tab would the user need to click on to change the page view from portrait to landscape?

- Finishing
- PDL
- Quality
- Orientation

**Correct Answer:** Orientation

**Explanation:** Orientation is the standard setting in printer preferences that allows a user to choose between portrait (vertical) and landscape (horizontal) page layouts.

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## Question 16

A security administrator checks computer components that rely on the unified extensible firmware interface (UEFI) feature that helps prevent malicious software applications from being hijacked. What is this component?

- USB permission
- Support virtualization
- Boot options
- Secure boot

**Correct Answer:** Secure boot



**Explanation:** Secure boot is a UEFI feature designed to prevent a computer from being hijacked by malware. Under secure boot, the computer's firmware has cryptographic keys that can identify and validate trusted code before it is allowed to run during the boot process.

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### **Question 17**

**A company has a structured cable system installed by a technician. The technician uses a permanent cable that terminates to wall ports and patch panels. What is this mechanism called?**

- RJ45
- RJ11
- T568A
- Punchdown block

**Correct Answer:** Punchdown block

**Explanation:** A punchdown block is a mechanism used to terminate solid-core cable wires onto the back of a patch panel or wall jack. A technician uses a punchdown tool to secure the wires into the block.

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### **Question 18**

**What interface is the parallel advanced technology attachment (PATA)?**

- SCSI
- DVI
- Serial
- IDE

**Correct Answer:** IDE

**Explanation:** For many years, the integrated drive electronics (IDE) interface was the principal mass storage interface for desktop PCs. It was retroactively named Parallel ATA (PATA) to distinguish it from the newer Serial ATA (SATA). The terms are used interchangeably.

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### **Question 19**

**A server system uses a method where each transfer performs a hash calculation on the data value and stores it as an 8-bit checksum. This can detect and correct**

single-bit errors and allow the PC to continue functioning normally. What is this method called?

- Dual-channel
- SODIMM
- Virtual RAM
- ECC RAM

**Correct Answer: ECC RAM**

**Explanation:** Error correction code (ECC) RAM is used for workstations and servers that require high reliability. It has an extra chip that can detect and correct single-bit memory errors on the fly.

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## Question 20

A technician installs a type of computer memory into a laptop built using integrated circuits. What is this called?

- Virtual RAM
- DDR5
- ECC RAM
- SODIMM

**Correct Answer: SODIMM**

**Explanation:** Small outline DIMM (SODIMM) is the smaller form factor of RAM packaged for use in laptops and other compact devices.

# Exam Practice 4: Virtualization and Cloud Computing

## Question 1

**Question:** When a user downloads a Microsoft Store application, where does the application run to prevent the app from making system-wide changes and prevent a faulty store app from "crashing" the entire OS?

**Options:**

- Resource requirements
- Cross-platform virtualization
- Test development

- Sandbox

**Correct Answer: Sandbox**

**Explanation:** A sandbox is an isolated environment where Microsoft Store apps run to prevent the app from making system-wide changes and prevent a faulty store app from "crashing" the entire OS.

## **Question 2**

**Question:** A cloud service provider (CSP) works with several organizations to establish new cloud deployments that best match their needs. Each organization has similar security needs and is open to sharing resources with other organizations to save money. Which cloud deployment sounds best for the CSP's new customers?

**Options:**

- Hybrid cloud
- Community cloud
- Public cloud
- Private cloud

**Correct Answer: Community cloud**

**Explanation:** The community cloud will be the best deployment model for the CSP's new customers. A community cloud allows several organizations to share the costs of either a hosted private or fully private cloud by pooling resources for common concerns, such as standardization and security policies.

## **Question 3**

**Question:** A systems engineer is building a virtual machine to run a service with an 8 core CPU and 500 GB of random access memory to function properly. Where would these two hardware requirements be listed?

**Options:**

- Resource requirements
- Test development
- Legacy software/OS
- Security requirements

**Correct Answer: Resource requirements**

**Explanation:** Resource requirements are important to consider and meet when setting up a virtualized system and network for virtualized systems to use. If the system is not designed with resource requirements in mind, it will be overwhelmed and dysfunctional.

## Question 4

**Question:** What software delivery method enables programmers and application administrators to ensure that the application used by clients is always updated with the latest code?

**Options:**

- Sandbox
- Application virtualization
- Cross-platform virtualization
- Legacy software/OS

**Correct Answer:** Application virtualization

**Explanation:** Application virtualization is a software delivery method that enables programmers and application administrators to ensure that clients' applications are always updated with the latest code.

## Question 5

**Question:** What can a cloud developer use to analyze viruses, worms, and Trojans without infecting their computer and network?

**Options:**

- Sandbox
- Test development
- Resource requirements
- Cross-platform virtualization

**Correct Answer:** Sandbox

**Explanation:** A sandbox is an isolated environment to analyze viruses, worms, and Trojans in a space that prevents the researcher's computer and network from becoming infected.

## Question 6

**Question:** A software development company uses a system to allow developers to log into any computer throughout the building and load their unique desktop environment. The IT department decided to manage these servers in the data center located in the basement of the company's office building. What system is the software development company leveraging?

**Options:**

- Virtual desktop infrastructure (VDI) on premises
- Platform as a service (PaaS)

- Virtual desktop infrastructure (VDI) in the cloud
- Infrastructure as a service (IaaS)

**Correct Answer: Virtual desktop infrastructure (VDI) on premises**

**Explanation:** Virtual desktop infrastructure (VDI) on-premises is correct because the developers log into virtual machines that load the user's computer images. The servers are hosted on the same network as the clients.

## **Question 7**

**Question:** Remote wipe, locator apps, device encryption, remote backup, and antivirus software fall under which category of requirements for virtualized environments?

**Options:**

- Security requirements
- Legacy software/OS
- Test development
- Resource requirements

**Correct Answer: Security requirements**

**Explanation:** Security requirements are correct because all the things listed in the question refer to profile security requirements established for any system.

## **Question 8**

**Question:** A systems engineer is doing an internal audit of their virtual environment before an annual inspection and is making sure that all the virtual machines are up to date on patches. What could the systems engineer consult to verify which patches need to be on each machine?

**Options:**

- Resource requirements
- Security requirements
- Legacy software/OS
- Test development

**Correct Answer: Security requirements**

**Explanation:** Security requirements are correct because patching is a part of ensuring a system is secure against the latest vulnerabilities.

## **Question 9**

**Question: What should a software development company utilize to test software applications that must operate under several different OS and resource constraints?**

**Options:**

- Sandbox
- Resource requirements
- Test development
- Cross-platform virtualization

**Correct Answer: Cross-platform virtualization**

**Explanation: Cross-platform utilization tests software applications under different OSs and resource constraints and is important to ensure the application is compatible across several different environments.**

## **Question 10**

**Question: A large real estate agency has acquired a new service from their cloud provider called Desktop as a Service (DaaS). The service will enable the real estate agents to use virtual machines to load their desktops. Which option best describes the service the real estate agency has begun using?**

**Options:**

- Virtual desktop infrastructure (VDI) in the cloud
- Private cloud
- Public cloud
- Virtual desktop infrastructure (VDI) on-premises

**Correct Answer: Virtual desktop infrastructure (VDI) in the cloud**

**Explanation: Virtual desktop infrastructure (VDI) in the cloud is often referred to as Desktop as a Service (DaaS) and enables users to load their desktops from a virtual machine hosted in the cloud.**

## **Question 11**

**Question: An important part of testing a new application is running it under several different OSs and resource constraints so the developer can be sure it will work for all customers regardless of their system. What term is used to identify the application testing described in this question?**

**Options:**

- Cross-platform virtualization
- Sandbox
- Test development
- Resource requirements

**Correct Answer: Cross-platform virtualization**

**Explanation:** Cross-platform utilization tests software applications under different OSs and resource constraints and is important to ensure the application is compatible across several different environments.

## **Question 12**

**Question:** A holiday decor store typically runs its cloud infrastructure privately, but its servers get bogged down by transactions during the peak holiday season. To mitigate any revenue losses, the store must outsource processing power to an outside cloud service provider to help support the increased sales volume. What cloud deployment model does the holiday decor store utilize?

**Options:**

- Private cloud
- Community cloud
- Public cloud
- Hybrid cloud

**Correct Answer: Hybrid cloud**

**Explanation:** Hybrid cloud deployment is what the holiday decor store utilizes because it allows the store to utilize its private cloud infrastructure during non-peak sales times and then incorporate a public cloud for support during peak sales times.

## **Question 13**

**Question:** What does the Microsoft Windows 'Programs and Features' applet allow the user to manage?

**Options:**

- Resource requirements
- Test development
- Security requirements
- Legacy software/OS

**Correct Answer: Legacy software/OS**

**Explanation:** Legacy software applications can be managed through the Microsoft Windows 'Programs and Features' applet.

## **Question 14**

**Question:** Sandboxes can be used to analyze viruses, worms, and Trojans. Sandboxes can also provide an isolated environment for what other important function?

**Options:**

- Resource requirements
- Cross-platform virtualization
- Testing and development
- Legacy software/OS

**Correct Answer: Testing and development**

**Explanation:** Test development often uses virtual desktop platforms based on some guest OS hypervisor.

### **Question 15**

**Question:** A startup company does not have the capital to invest in infrastructure to host its website, nor does it have the capital to hire engineers to manage its cloud environment. At this point, strict access control is not a concern for the startup, but they do not want to share resources with other organizations. Which cloud implementation will best suit the startup's needs?

**Options:**

- Hybrid cloud
- Public cloud
- Private cloud
- Community cloud

**Correct Answer: Public cloud**

**Explanation:** Public cloud will best meet the startup's needs because it offers subscriptions and pay-as-you-go finances and can even provide lower-tier services free of charge. Public clouds are also offered over an internet connection by cloud service providers (CSPs).

### **Question 16**

**Question:** A government organization wants to develop its own application to process information, but they do not want to be responsible for maintaining the hardware or the database platform that the application runs on. Additionally, the organization does not want to be burdened with maintaining the integrity and availability of the database platform because it will be very busy with other responsibilities. Which service would be best for the government organization to pursue?

**Options:**

- Shared resources
- Infrastructure as a service (IaaS)
- Platform as a service (PaaS)
- Community cloud



**Correct Answer: Platform as a service (PaaS)**

**Explanation:** Platform as a service (PaaS) is correct. PaaS would provide IT hardware and the database platform on top of the hardware, but the customer must develop their app to run on top of the platform. The service provider will maintain the integrity and the availability of the platform for the customer.

### **Question 17**

**Question:** Cloud service providers (CSPs) help organizations save time and money by hosting virtual resources on their hardware. What do CSPs use to ensure efficiency while providing services to customers?

**Options:**

- Shared resources
- Hybrid cloud
- Public cloud
- Community cloud

**Correct Answer: Shared resources**

**Explanation:** Shared resources are correct. To meet availability, scalability, and elasticity requirements, cloud providers must be able to provision and de-provision resources automatically through the pooling of shared resources and virtualization.

### **Question 18**

**Question:** A large store chain is eager to reduce the cost of maintaining its servers but is unsure what the best method would be for its use case. The major requirements for the chosen solution are that the store chain needs to own its cloud infrastructure (without sharing with another organization) to maintain maximum privacy and security of the data. Which cloud computing option best meets the store chain's major requirements?

**Options:**

- Public cloud
- Community cloud
- Hybrid cloud
- Private cloud

**Correct Answer: Private cloud**

**Explanation:** The private cloud meets the store chain's two major requirements because it gives organizations greater control over the privacy and security of its data stored in the cloud.

### **Question 19**

**Question: A startup company does not have the funds or the time to buy and configure its computer resources, so it pays a service provider to deploy IT resources such as servers, load balancers, and storage components. What service is the startup company paying for?**

**Options:**

- **Infrastructure as a service (IaaS)**
- **Software as a service (SaaS)**
- **Shared resources**
- **Platform as a service (PaaS)**

**Correct Answer: Infrastructure as a service (IaaS)**

**Explanation: Infrastructure as a service (IaaS) is correct. IaaS is a means of provisioning IT hardware and the internet links they require, as needed, from a service provider's data center.**

## **Question 20**

**Question: What is the typical use for virtual desktop platforms based on guest OS hypervisor?**

**Options:**

- **Testing and development**
- **Cross-platform virtualization**
- **Resource requirements**
- **Legacy software/OS**

**Correct Answer: Testing and development**

**Explanation: Desktop virtual platforms, usually based on guest OS, are typically used for testing and development.**

# Exam Practice 5: Hardware and Network Troubleshooting

## Question 1

**Question:** What are the causes of the error message, 'Boot device not found' ? (Select two.)

**Options:**

- Faulty disk
- Disk thrashing
- File corruption
- Grinding noise

**Correct Answer:** Faulty disk, File corruption

**Explanation:** A faulty drive or connection to the drive can cause the error message, 'Boot device not found.' Corruption of the boot section can cause the error message, 'Boot device not found.' An external bootable device can access the drive through the OS to attempt to fix the data or simply recover the data. Disk thrashing is a constant read/write activity on the drive. Low random access memory (RAM), faulty software, or malware can cause disk thrashing to occur. A grinding noise indicates mechanical problems with a hard disk drive (HDD). If the device is not initializing, it can not cause grinding noises.

## Question 2

**Question:** A projector shut down two hours into a presentation. What could be the problem?

**Options:**

- Overheating
- Bad HDMI cable
- Burned-out bulb
- Connectors not secure

**Correct Answer:** Overheating

**Explanation:** Intermittent projector shutdown is typically caused by overheating. After being on for over two hours, overheating is a reasonable assumption. Check if the projector's fan is working and that the vents are free from dust and not obstructed. A burned-out bulb will not turn the projector off but will instead cease to display an image. A bad high-definition multimedia interface (HDMI) cable can cause problems, but the fact that the projector was working for over two hours and then shut down does not point to a cable problem. Connectors that are not securely plugged in can generally be diagnosed by a flashing screen, not turning off.

## Question 3

**Question:** A user complains that their monitor keeps flickering. What is the first thing to check?

**Options:**

- Connectors
- Brightness and contrast
- Resolution
- Color calibration

**Correct Answer:** Connectors

**Explanation:** The user needs to check the connectors on both sides. If not securely inserted at both ends, it will cause flickering. The image will appear fuzzy if the output resolution does not match the display device's native resolution. This fuzzy resolution typically happens if the video card's driver is faulty or incorrectly configured. The user should check the brightness and contrast controls if the image is very dim, not if it is flickering. If a computer produces digital art, it is very important that the user calibrate the display to scanning devices and print output. Color calibration (or workflow) refers to a process of adjusting the screen and scanner settings to balance color input and output.

## Question 4

**Question:** A computer has multiple hard drives installed, but the second hard drive does not show up in Windows Explorer. What is a possible problem?

**Options:**

- Corrupted boot sector
- Overheating
- Cable or connector fault
- Bad sectors

**Correct Answer:** Cable or connector fault

**Explanation:** Suppose the system boots, but a second fixed disk or removable drive does not appear in File Explorer. The technician should first check that the system has initialized and formatted with a partition structure and file system. If the system does not detect the disk by a configuration tool, such as Windows Disk Management, the technician will suspect that there is a hardware or cable/connector fault. The computer booted up correctly, so a corrupted boot sector is not the problem. Overheating is generally detected by the computer becoming hot to the touch. Bad sectors occur when parts of a hard disk drive (HDD) fail, resulting in read/write failures and not the inability to see a hard drive in the OS.

## Question 5

**Question:** A technician responds to a computer intermittently shutting down and finds that the tower has a personal heater blowing on it. What is a likely problem?

**Options:**

- Overheating
- Hard drive failure
- Malware
- Unstable power supply

**Correct Answer:** Overheating

**Explanation:** The computer is overheating. Even with all the fans working properly, computers cannot have personal space heaters blowing directly on them. Redirecting the heater should resolve the problem. Intermittent shutdowns can be an indicator of malware, but the physical details in this example do not point to malware as the problem. A power supply unit (PSU) that is not delivering stable power can cause intermittent shutdowns, but this does not seem to be the problem here. Instead, the space heater is the apparent problem. Hard drive failure can result in intermittent shutdowns and is diagnosed with OS tools, such as the `chkdsk` command. However, this is unlikely to be the problem in this case.

## Question 6

**Question:** A computer monitor's display is so dim that it is almost invisible. What is the likely problem?

**Options:**

- Failed display backlight
- Dead pixels
- Incorrect cables
- Incorrect resolution

**Correct Answer:** Failed display backlight

**Explanation:** If a display's image is so dim that it is almost invisible, the backlight has probably failed. The technician will need to replace the backlight or get it repaired under warranty. The image will appear fuzzy if the output resolution does not match the display device's native resolution. This fuzzy resolution typically happens if the video card's driver is faulty or incorrectly configured. Dead pixels occur when individual pixels stay black. A technician generally cannot fix dead pixels. Incorrect cables can cause many problems, from flickering screens to audio problems. However, in this case, it is unlikely to be the problem.

## Question 7

**Question:** While diagnosing a computer that is not powering on, the technician has established that the wall socket is working correctly since there is a fully plugged power cord. What would be a reasonable next step?

**Options:**

- Check the system configurations.
- Plug in a known working monitor.
- Use another power cable.
- Disconnect the plug-in graphics card.

**Correct Answer:** Use another power cable.

**Explanation:** After the troubleshooting steps listed, the next reasonable step would be to replace the power cord with a known good cord. If there is a problem with the cord, and the computer boots with a known good cord, then that was the issue. After checking the power cord, disconnect any extra devices. For example, the power supply unit (PSU) might be under-powered for the external device. For diagnosing blank screen problems, plug in a known good external monitor. However, it is not

appropriate when the computer is not getting power. Checking system configurations can help diagnose application crashes or intermittent restarts, but it is not possible if the computer is not getting power.

## Question 8

**Question:** What might be diagnosed by no LED status indicators on a drive?

**Options:**

- Faulty disk
- Keyboard issue
- Corrupted boot sector
- Bad sectors

**Correct Answer:** Faulty disk

**Explanation:** No LED status indicator lights could indicate that the whole system might not be receiving power or that the individual disk could be faulty. A read/write error can indicate faulty sectors in a hard disk drive (HDD). Likewise, a power failure or a mechanical fault can damage a sector. If the technician runs a test utility, such as the chkdsk command, and chkdsk locates more bad sectors each time the technician runs the test, it is a sign that the disk is about to fail. During the power-on self-test (POST), three long beeps will indicate a keyboard issue. The error message, 'Boot device not found,' would indicate a corrupted boot sector.

## Question 9

**Question:** A user is trying to print visual graphics for an upcoming meeting, but the paper is coming out faded. What should they check first?

**Options:**

- Creased paper
- Paper weight
- Orientation
- Toner cartridge

**Correct Answer:** Toner cartridge

**Explanation:** For faded or faint prints, if a simple cause, such as the user choosing an option for low density (draft output), can be discounted, then this is most likely to indicate that the toner cartridge needs replacing. If the paper is not feeding into the printer, check that the paper is not creased, damp, or dirty. If the printer is feeding multiple sheets also check the paper size and weight. For incorrect page orientation, the paper size and orientation must be set correctly for the print job or the finishing/binding will be aligned to the wrong edge.

## Question 10

**Question:** A technician has tested a computer with extended read/write times and found it to have IOPS reduced from vendor baselines. What should the technician do next?

**Options:**

- Change the power cord.

- Change the PSU.
- Replace the drive.
- Make data backups.

**Correct Answer:** Make data backups.

**Explanation:** A computer experiencing extended read/write times and a technician diagnosing it with reduced input/output operations per second (IOPS) has a failing drive. However, the drive has not yet failed, so the first thing to do is perform data backups. Immediately replacing the drive will result in full data loss. However, the drive has not failed yet, so the technician should back up the data before replacing the drive. The technician should replace the power supply unit (PSU) when it is overheating or not delivering consistent power. The technician should replace a frayed power cord when the cord is no longer working.

## Question 11

**Question:** A user complains that their phone restarts unexpectedly. However, after trying to isolate the problem, the technician has no idea what is causing the unexpected restarts.

What should the technician consider as a possible cause and thoroughly examine for?

**Options:**

- Digitizer
- Battery
- Video configuration
- Malware

**Correct Answer:** Malware

**Explanation:** Whenever a device does not function as expected, the technician should always consider malware. Malware or rogue apps are likely to try to collect data in the background. As a result, the device can become unresponsive and force system crashes. A faulty battery is unlikely to cause apps to crash. An overheating battery can force a phone to turn off, but there is no mention of overheating. Video configuration problems can result in blurry images but would not cause apps to crash. A problematic digitizer would result in the touch screen not working or giving unreliable results.

## Question 12

**Question:** What issue does constant indicator LED activity imply?

**Options:**

- Not enough system RAM
- Connector fault
- Mechanical problem
- Faulty boot sector

**Correct Answer:** Not enough system RAM

**Explanation:** Constantly on light-emitting diode (LED) indicator lights imply disk thrashing. Disk thrashing occurs when there is not enough system random access memory (RAM), so the system continually uses the disk for paging (virtual memory). It could also signify a faulty software process or that malware has infected the

system. A faulty boot sector would display the error message, "Bootable device not found" instead of constantly on LED indicator lights. If the device does not boot at all, a physical connection in the computer could be faulty. Loud clicking or grinding noises as the drive is operating indicate mechanical problems with the drive. Therefore, the technician should replace the hard disk drive (HDD) as soon as possible.

## Question 13

**Question:** What is a physical indicator of overheating?

**Options:**

- Burning smell
- Blank screen
- LED status lights
- Grinding noises

**Correct Answer:** Burning smell

**Explanation:** Excessive heat can easily damage a computer. A burning smell will almost always indicate that something (probably the power supply) is overheating. Shut down the system immediately and investigate the problem. Grinding or clicking noises generally indicate a mechanical problem with the hard drive disk (HDD), not overheating problems. LED status lights can indicate if the computer is getting power or other diagnostic codes. They do not indicate overheating. A blank screen can indicate anything from no power to a faulty screen. A blank screen does not directly point to overheating problems.

## Question 14

**Question:** A user is trying to mirror a computer to a large display monitor for a presentation. The computer is on, and the display reads "no input" on the screen. An HDMI cable connects the two devices. What would be the next thing to check?

**Options:**

- Turn the display on.
- Change the display source.
- Replace the bulb.
- Change the HDMI cable.

**Correct Answer:** Change the display source.

**Explanation:** The computer and the monitor display are on, and a cable connects the two. The next thing to check is to ensure the user chooses the appropriate data source. Generally, a menu on the display will change the data source to the appropriate high-definition multimedia interface (HDMI) cable. The monitor display is already on, indicated by the "no input" on the screen. The HDMI cable may be the problem, but the more obvious problem is that the user chose the wrong input source on the display screen. A burned-out bulb is a problem with a light-emitting diode (LED) projector, not a large monitor display.

## Question 15



**Question:** A user complains that their laptop does not hold a charge for more than 30 minutes, even after charging all night. They also mention that there is an error message when they restart their computer that states something about power. What is likely the problem?

**Options:**

- Under-powered adapter
- Poor battery health
- Physically damaged charging port
- Swollen battery

**Correct Answer:** Under-powered adapter

**Explanation:** AC adapters can get mixed up. If an under-powered adapter is used, the laptop will display a warning at boot. Using the wrong adapter can cause problems, such as the battery not completely charging. As batteries age, they no longer hold a charge and need to be replaced. This would be the best answer, except that the boot error points to another problem. A swollen battery indicates a problem with the battery's charging circuit. This can be diagnosed by the keyboard or trackpad being pushed up or the laptop wobbling when sitting on a flat surface. Charging ports can be damaged by improper insertion and removal of the connectors. Signs of this are no charging or intermittent charging.

## Question 16

**Question:** A technician is working on a blank computer monitor problem. The monitor power cord is plugged in and receiving power. What is the next step to check?

**Options:**

- Check for physical damage.
- Check the PSU.
- Check monitor input settings.
- Check if the monitor connects to the computer.

**Correct Answer:** Check if the monitor connects to the computer.

**Explanation:** A systematic approach to troubleshooting helps save time and effort. After verifying that the monitor is getting power, checking that the monitor connects to the computer is the next logical step. The power supply unit (PSU) is a component on the computer that can cause intermittent issues if it is failing. There is no indication that the PSU is the problem here. Incorrect monitor input settings can cause a blank screen but the technician should follow the step verifying that the monitor connects to the computer first. Physical damage to a computer can cause problems, but there is no indication that this could be the problem and is not a logical next step.

## Question 17

**Question:** What problem does a screensaver help prevent?

**Options:**

- Fuzzy image
- Stuck pixels
- Display burn-in

- Dim image

**Correct Answer:** Display burn-in

**Explanation:** When the same static image displays for an extended period, it can damage the monitor's picture elements, causing a ghost image to "burn" permanently onto the display. An animated screensaver can help prevent this problem. If the output resolution does not match the display device's native resolution, then the image will appear fuzzy. Incorrect settings or a failed backlight can cause a dim image. Adjusting the brightness and contrast of a display can help fix a dim image. A flat-panel monitor defect may cause individual pixels to be "stuck" or "dead." If a digital display panel has stuck pixels and the panel is not replaceable under warranty, then software utilities are available to reactivate pixels.

## Question 18

**Question:** A computer monitor keeps flickering. The technician has checked the connectors and replaced the cords, yet the problem continues. The technician connects the display to another computer, and the flickering problem is gone. What is the likely problem?

**Options:**

- Incorrect resolution
- Faulty video card
- Failing display
- Incorrect contrast controls

**Correct Answer:** Faulty video card

**Explanation:** A faulty or overheating video card could cause a flickering screen. Attaching the display device to a different computer isolates the cause of the issue. Since the flickering stopped when connected to a different computer, the display is not the problem. If the display were failing, it would also likely include bright or dim bands or lines and bright spots at the edge of the screen. An incorrect resolution will cause a blurry image but not a flickering image. Incorrect contrast controls can cause a dim image but not a flickering image.

## Question 19

**Question:** A RAID array cannot boot, and the technician cannot reach the configuration utility. There have been no recent changes to the array. What is the likely problem?

**Options:**

- Failed RTC battery
- Misconfiguration
- Controller failure
- Disk failure

**Correct Answer:** Controller failure

**Explanation:** If the redundant array of independent disks (RAID) array cannot boot, the first step is to use the configuration utility to verify the status. If the system cannot reach it, then the controller likely failed. Single disk failure would not stop the booting process from happening. RAID arrays operate so that a single disk can fail and not cause any data loss. Misconfiguration can always be a problem, but no recent

changes occurred in this case. If it was booting fine before and no configurations have changed, then misconfiguration is highly unlikely to be the problem. A failed real-time clock (RTC) battery will cause an incorrect date or time but will not stop a RAID array from booting.

## Question 20

**Question:** A computer is not displaying any content on the screen, and it makes continuous beeps after booting. What is the likely problem?

**Options:**

- Power supply error
- System memory problem
- Faulty screen
- Keyboard issue

**Correct Answer:** System memory problem

**Explanation:** Not all modern computers use power-on self-test (POST) beep codes, but it is a valuable diagnostic tool. For example, the continuous beep code indicates a problem with system memory modules or memory controllers. This problem can stop the computer from booting or from displaying properly. The system will indicate a keyboard issue with three long beeps, and the technician can generally solve it by removing whatever is depressing a key. A faulty screen would result in a blank screen, but it does not give the POST beep code. A power supply error results in either repeating short beeps or the computer failing to initiate POST at all.