FBLA HS Computer Problem Solving*

Operating Systems (20 test items)

1. Explain the purpose and functions of operating systems
2. Describe primary operating system components (e.g., registry, virtual memory, file system)
3. Discuss file system characteristics and features (e.g., NTFS, FAT32, ExFAT)
4. Configure files and programs (e.g., compatibility mode, file compression, installation)
5. Discuss the characteristics of boot methods (e.g., POST, USB, Recovery)
6. Troubleshoot common operating system issues (e.g., blue screen of death, crashing, boot issues)
7. Discuss common operating system utilities (e.g., disk management, disk cleanup, system monitoring)
8. Explain considerations when upgrading an operating system
9. Use common command line tools for Windows and Linux systems (e.g., cd, mkdir, ipconfig, cat)

Networks (20 test items)

1. Explain how data is sent and received through a network (e.g., devices, protocols, IP and MAC addresses)
2. Describe different types of networks (e.g., LAN, WAN)
3. Describe the functions of common networking protocols (e.g., TCP/IP, UDP, SMTP, SSH)
4. Discuss IP addressing schemes and configurations (e.g., static, dynamic, public, private, IPv4, IPv6)
5. Describe wireless networking standards (e.g., 802.11xx) and equipment
6. Describe the characteristics of Ethernet (e.g., types, standards, capabilities)
7. Describe how DHCP and DNS assign, manage, and use IP addresses
8. Discuss the purposes and functions of common networking devices (e.g., modems, routers, switches)
9. Describe how IP and MAC addresses facilitate communication over networks

Computer Hardware and Connectivity (20 test items)

1. Describe computer components (e.g., CPU, motherboard, GPU)
2. Describe expansion cards (e.g., graphics cards, sound cards, NIC)
3. Discuss considerations when purchasing or upgrading a computer
4. Describe computer storage devices (e.g., SSD, HDD, external drives)
5. Explain peripheral cables and connectors (e.g., RJ45/11, USB, thunderbolt)
6. Describe the characteristics of network cables (e.g., cat 5e, coaxial, fiber)
7. Apply troubleshooting methodologies to identify and solve common hardware problems
8. Discuss symptoms and causes of computer power issues (e.g., lights, fans, circuit fault)

Security (15 test items)

1. Discuss the purposes and characteristics of protective measures (e.g., access control, permissions, auditing, event logging)
2. Discuss digital security threats (e.g., viruses, malware, spyware)
3. Discuss antivirus and firewall configurations
4. Discuss the danger of social engineering and ways to prevent it
5. Discuss common cyber attacks and vulnerabilities (DoS, DDoS, phishing, SQL injection, malware, etc.)
6. Discuss types of security threats (e.g., internal or external, footprinting, spoofing)
7. Differentiate between confidentiality, integrity, and availability
8. Describe types of vulnerabilities and how to address them (e.g., non-compliance, zero-day)
9. Discuss Wi-Fi Protect Access features, versions, and characteristics

Laptops, Tablets, and Mobile Devices (15 test items)

1. Describe preventive care of laptops and mobile devices (e.g., battery, charging, heat, cleaning)
2. Discuss hardware differences between laptops, mobile devices, and desktops (e.g., RAM, CPU, efficiency, power supply)
3. Discuss cross-device data synchronization (e.g., cloud, USB, Wi-Fi)
4. Describe the capabilities, limitations, and requirements for Bluetooth
5. Troubleshoot connectivity issues on laptops and mobile devices
6. Discuss wireless connectivity methods for laptops and mobile devices (e.g., 5G, Hotspot, LTE)
7. Discuss replacement and upgrade of laptop components (e.g., RAM, adapter, battery, adapter cards)
8. Explain common hardware and power issues in laptops and mobile devices

Printers and Peripherals (10 test items)

1. Discuss printer hardware and consumables
2. Identify ports, interfaces, and cables used by printers
3. Troubleshoot printer connection issues (e.g., not responding, printer not found)
4. Determine causes of print quality issues (e.g., faded, blank, speckled, striped pages)
5. Explain basic maintenance of laser, inkjet, and thermal printers
6. Discuss printer sharing methods (e.g., PC host, network, Ethernet)
7. Customize print jobs with preferences and settings (e.g., trays, duplex, modes)

References

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