

## Domain 1.0 Personal Computer Components

### 1.1 - Identify the fundamentals of using computers

- Identify the names, purposes and characteristics of storage devices
- Identify the names, purposes and characteristics of mother boards ATX / BTX, micro ATX / BTX, Integrated I/Os, IEEE1394, Modem, NIC, Bus Architects, SATA, SCSI, BIOS, CMOS, External Cache, Video and Sound Cards
- Identify the names, purposes and characteristics of power supplies.
- Identify the names, purposes and characteristics of processors / CPUs - Hyper threading, Dual Core, Over clocking, Cache, VRM, Speed and 32 vs. 64 bit
- Identify the names, purposes and characteristics of memory- DRAM, SRAM, SDRAM, and DDR? DDR2, RAMBUS, ECC vs. non-ECC, Parity vs. Non Parity
- Identify the names, purposes and characteristics of display devices- CRT, LCD, connector types, VGA, DVI / HDMi, S-Video, Component / RGB, V-hold, refresh rate and resolution.
- Identify the names, purposes and characteristics of input devices- mouse, keyboard, bar code reader, digital cameras. MIDI, touch screen and biometric devices.
- Identify the names, purposes and characteristics of adapter cards - Video cards, multimedia, I / O (USB, Serial, Parallel and SCSI) and communicating with network and modem.
- Identify the names, purposes and characteristics of ports and cables - USB, parallel, Serial, IEEE 1394, RJ45, RJ11, Coaxial and SPDIF.
- Identify the names, purposes and characteristics of cooling systems- heat sinks, CPU and case fans, liquid cooling and thermal compound.

### 1.2 - Install, Configure, Optimize and upgrade personal computer components

- Add, Remove and Configure internal and external storage devices
- Install display devices
- Add, Remove and configure basic input and multimedia devices

### 1.3 - Identify tools, diagnostic procedures and troubleshooting techniques for personal computer components

- Recognize the basic aspects of trouble shooting theory - perform backups before making changes, asses a problem systematically, verify even the obvious, research ideas and document findings
- Identify and apply basic diagnostic procedures and troubleshooting techniques - Identify the problem, Analyze the problem, test and inspect related components, evaluate results and document outcomes and results.
- Recognize and isolate issues with display, power, basic input devices, storage, memory, thermal, POST errors
- Apply basic troubleshooting techniques to check for problems - motherboard, power supply, processor CPU, memory, display devices, input devices and adapter cards.
- Recognize the names, purposes, characteristics and appropriate application tools for BIOS; self-test, hard drive self test and software diagnostic test.

### 1.4 - Perform preventive maintenance on personal computer components

- Identify and apply basic aspects of preventive maintenance theory - visual and audio inspection - Drivers / firmware updates, scheduling preventive maintenance, using appropriate tools and cleaning materials and ensuring proper environment.

- Identify and apply common preventative maintenance techniques for devices such as input devices and batteries.

## 2.0 - Laptops and Portable Devices

### 2.1 Identify the fundamentals principles of using laptops and portable devices

- Identify names, purposes and characteristics of laptop specifics - form factors, peripherals, expansion slots, communication connections (Bluetooth, infrared, cellular WAN, Ethernet), power and electrical input devices, LCD technologies (XGA, SXGA, WUXGA), and input devices.
- Identify and distinguish between mobile and desktop motherboards and processors - WiFi and power management.

### 2.2- Install, configure, optimize and upgarde laptops and portable devices.

- Configure power management - BIOS - ACPI and indentify the difference between suspend, hibernate and standby.
- Demonstrate safe removal of lap-top hardware - hot swappable and non swappable devices

### 2.3 - Identify tools, basic diagnostic procedures and troubleshooting technique for laptops and portable devices.

- Use procedure and techniques to diagnose power conditions, video, keyboard, pointer and wireless card issues

### 2.4 Perform preventative maintenance on laptops and portable devices;

- Identify and apply common preventative maintenance techniques for laptops and portable devices.

## Domain 3.0 Operating Systems- Windows 2000, XP Professional, Vista

### 3.1- Identify the fundamentals of using operating systems

- Identify differences between operating systems, revisions, GUI, system requirements for Mac, Windows and Linux.
- Identify names, purposes and characteristics of the primary operating system components including registry, virtual memory and file system.
- Describe features of operating system interface- Windows explorer, My Computer, Command Prompt, Control Panel, Start Menu and Task Bar.
- Identify the names and locations, purposes and characteristics of operating system files. BOOT.INI, NTLDR, NTDETECT.COM, NTBOOTDD.SYS and Registry Data files.
- Indentify concepts and procedures for creating, viewing, managing disks, directories and files in operating systems.

### 3.2 - Install, configure, optimize and upgrading operating systems

- Identify procedures for installing operating systems

- Identify procedures for upgrading operating systems.
- Install / add a device including loading, adding device drivers and required software - permissions, using unsigned drivers and verifying installation of drivers.
- Identify procedures and utilities used to optimize operating systems - virtual memory, hard drives, service, setups and startup.

### **3.3 Identifying tools, diagnostic procedures and troubleshooting techniques for operating systems**

- Identify basic boot sequence and utilities for recovering operating systems
- Identify and apply diagnostic procedures and troubleshooting techniques
- Recognize and resolve common operational issues such as bluescreen, system lock-up and application install.
- Explain common error messages and codes - event viewer, Registry, Windows reporting, Boot and Start up.
- Identify the names and locations, purposes and characteristics of operating system utilities

### **3.4 Perform preventive maintenance on operating systems.**

- Describe common utilities for performing preventive maintenance.

## **Domain 4.0 Printers and Scanners**

### **4.1 - Identify the fundamental principles of using printers and scanners**

- Identify differences between types of printers and scanner technologies.
- Identify, name, purposes and characteristics of printer and scanner components.
- Identify the names, purposes and characteristics of interface used by printers and scanners - USB, Network, Parallel, IEEE, Wireless and SCSI.

### **4.2 - Identify basic concepts of installing, configuring, optimizing and upgrading printers and scanners**

- Install and configure printers and scanners
- Optimize printer performance

### **4.3 - Identify tools, basic diagnostic procedures and troubleshooting techniques for printers and scanners**

- Gather information about printers and scanners
- Review and analyze collected data
- Identify solutions to identified printer scanner problems

## **Domain 5.0 Networks**

### **5.1 - Identify the fundamental principles of networks**

- Describe the basic network concepts
- Identifying names, purposes and characteristics of the common network cables
- Identify names, purposes and characteristics of network connectors

- Identify names, purposes and characteristics of technologies for establishing connectivity -Broadband, ISND, LAN /WAN, Wireless, Infrared, Bluetooth, Cellular and VoIP.

#### **5.2 Install, configure, optimize and upgrade networks.**

#### **5.3 Identify tools, diagnostic procedures and and troubleshooting techniques for networks**

#### **5.4 Install, configure, optimize security cameras**

### **Domain 6.0 Security**

#### **6.1 - Identify the fundamental principles of security**

- Identify names, purposes and characteristic of hardware and software security - Authentication, malicious software protection, files system security, firewalls and Smart Cards.
- Identify names, purposes and characteristics of wireless security - encryption, access points
- Identify names, purposes and characteristics of data and physical security - Data access, encryption, backups, data migration, password management and locking workstations.
- Describe importance and process of incidence reporting.
- Recognize and respond appropriately to social engineering situations

#### **6.2 - Install, configure, upgrade and optimize security**

- Install, configure, upgrade and optimize hardware, software and data security - BIOS, smart cards, data migration, backups, authentications, and malicious software protection

#### **6.3 - Identify tool, diagnostic procedures and trouble shooting techniques for security**

- Diagnose and troubleshoot hardware, software and data security

#### **6.4 Perform preventive maintenance for computer security**

- Implement software security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies.

### **Domain 7.0 A+ Safety and Environmental Issues**

#### **7.1 - Describe the aspects and the importance of safety and environmental issues**

- Identify potential safety hazards and take preventative maintenance
- Use material Safety data sheets
- Use appropriate repair tools
- Describe methods to handle environmental and human accidents

#### **7.2 - Identify potential hazards and implement safety procedures including ESD precautions and procedures, safe work environment and equipment handling**

**7.3 -Identify proper disposal procedures for batteries, display devices, chemical solvents and cans**

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