## Computer Maintenance Technology

**I. Perform a maintenance on personal computers and computer components**

Tasks Instructions:

| Each number to the right refers to a single student/candidate (1-10). Place a check (√) in the respective column for the appropriate student/candidate number (1-10) if the skills listed below are observed as stated. Leave blank if not observed. Student/candidate will only get credit for the skills they have demonstrated. | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
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| Identify the names, purposes and characteristics of storage devices | | | | | | | | | | |
| Identify the names, purposes and characteristics of motherboards | | | | | | | | | | |
| Identify the names, purposes and characteristics of power supplies | | | | | | | | | | |
| Identify the names purposes and characteristics of processor/CPUs | | | | | | | | | | |
| Identify the names, purposes and characteristics of memory | | | | | | | | | | |
| Identify the names, purposes and characteristics of display devices | | | | | | | | | | |
| Identify the names, purposes and characteristics of input devices | | | | | | | | | | |
| Identify the names, purposes and characteristics of adapter cards | | | | | | | | | | |
| Identify the names, purposes and characteristics of ports and cables | | | | | | | | | | |
| Identify the names, purposes and characteristics of cooling systems | | | | | | | | | | |
| 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 | | | | | | | | | | |
| Recognize the basic aspects of troubleshooting | | | | | | | | | | |
| Identify and apply basic diagnostic procedures and troubleshooting techniques | | | | | | | | | | |
| Recognize and isolate issues with display, power, basic input devices, storage, memory, thermal, POST errors, peripherals, multimedia, specialty input devices, internal and external storage and CPUs | | | | | | | | | | |

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| Apply basic troubleshooting techniques to check for problems (e.g., thermal issues, error codes, power and connections including cables and/or pins, compatibility, functionality, software/drivers) with components | | | | | | | | | | |
| Recognize the names, purposes, characteristics and appropriate application of tools, for example: BIOS, self-test, hard drive self-test and software diagnostics test | | | | | | | | | | |
| Identify the steps used to troubleshoot components (e.g., check proper seating, installation, appropriate components, settings and current driver) | | | | | | | | | | |
| Recognize names, purposes, characteristics and appropriate application of tools | | | | | | | | | | |
| Identify and apply basic aspects of preventative maintenance theory | | | | | | | | | | |
| Identify and apply common preventative maintenance techniques for devices such as input devices and batteries | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (25)** | | | | | | | | | | |
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| **II. Perform maintenance procedures on laptops and portable devices** | | | | | | | | | | |
| Tasks Instructions: | | | | | | | | | | |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Identify names, purposes and characteristics of laptop-specific devices | | | | | | | | | | |
| Identify and distinguish between mobile and desktop motherboards and processors including throttling, power management and Wi-Fi | | | | | | | | | | |
| Identify appropriate applications for laptop-specific communication connections such as Bluetooth, infrared, cellular WAN and Ethernet | | | | | | | | | | |
| Identify appropriate laptop-specific power and electrical input devices and determine how amperage and voltage can affect performance | | | | | | | | | | |
| Identify the major components of the LCD including inverter, screen and video card | | | | | | | | | | |
| Configure power management on laptop and portable devices | | | | | | | | | | |
| Demonstrate safe removal of laptop-specific hardware such as peripherals, hot-swappable devices and non-hot-swappable devices | | | | | | | | | | |
| Remove laptop-specific hardware such as peripherals, hot-swappable and non-hot-swappable devices | | | | | | | | | | |
| Describe how video sharing affects memory upgrades | | | | | | | | | | |
| Use procedures and techniques to diagnose power conditions, video, keyboard, pointer and wireless card issues | | | | | | | | | | |

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| Use tools, diagnostic procedures and troubleshooting techniques for laptops and portable devices | | | | | | | | | | |
| Use procedures and techniques to diagnose power conditions, video, keyboard, pointer and wireless card issues | | | | | | | | | | |
| Identify and apply common preventative maintenance techniques for laptops and portable devices, for example: cooling devices, hardware and video cleaning materials, operating environments including temperature and air quality, storage, transportation and shipping | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (15)** | | | | | | | | | | |

**III. Manage operating systems within Microsoft Windows 2000, XP Professional, XP Home and Media Center**

Tasks Instructions:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
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| Identify differences between operating systems (e.g., Mac, Windows and Linux) and describe operating system revision levels including GUI, system requirements, application and hardware compatibility | | | | | | | | | | |
| Identify names, purposes and characteristics of the primary operating system components including registry, virtual memory and file system | | | | | | | | | | |
| Describe features of operating system interfaces | | | | | | | | | | |
| Identify the names, locations, purposes and characteristics of operating system files | | | | | | | | | | |
| Identify concepts and procedures for creating, viewing and managing disks, directories and files in operating systems | | | | | | | | | | |
| Use command-line functions and utilities to manage operating systems, including proper syntax and switches | | | | | | | | | | |
| Locate and use operating system utilities and available switches | | | | | | | | | | |
| Identify procedures for installing and optimizing operating systems | | | | | | | | | | |
| Identify procedures for upgrading operating systems | | | | | | | | | | |
| Install/add a device including loading, adding device drivers and required software | | | | | | | | | | |
| Identify procedures and utilities used to optimize operating systems for example, virtual memory, hard drives, temporary files, service, startup and applications | | | | | | | | | | |
| Identify basic boot sequences, methods and utilities for recovering operating systems | | | | | | | | | | |

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| Identify and apply diagnostic procedures and troubleshooting techniques | | | | | | | | | | |
| Recognize and resolve common operational issues such as blue screen, system lock-up, input/output device, application install, start or load and Windows-specific printing problems (e.g., print spool stalled, incorrect/ incompatible driver for print) | | | | | | | | | | |
| Explain common error messages and codes | | | | | | | | | | |
| Identify the names, locations, purposes and characteristics of operating system utilities | | | | | | | | | | |
| Demonstrate the ability to recover operating systems (e.g., boot methods, recovery console, ASR, ERD) | | | | | | | | | | |
| Use diagnostic utilities and tools to resolve operational problems | | | | | | | | | | |
| Describe common utilities for performing preventative maintenance on operating systems; for example, software and Windows updates (e.g., service packs), scheduled backups/restore and restore points | | | | | | | | | | |
| Demonstrate the ability to perform preventative maintenance on operating systems including software and Windows updates (e.g., service packs), scheduled backups/restore and restore points | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (22)** | | | | | | | | | | |
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| **IV. Install and configure printers and scanners successfully** | | | | | | | | | | |
| Tasks Instructions: | | | | | | | | | | |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Identify differences between types of printer and scanner technologies | | | | | | | | | | |
| Identify names, purposes and characteristics of printer and scanner components and consumables | | | | | | | | | | |
| Identify the names, purposes and characteristics of interfaces used by printers and scanners including port and cable types | | | | | | | | | | |
| Describe processes used by printers and scanners including laser, ink dispersion, thermal, solid ink and impact printers and scanners | | | | | | | | | | |
| Install and configure printers/scanners | | | | | | | | | | |
| Optimize printer performance; for example, printer settings such as tray switching, print spool settings, device calibration, media types and paper orientation, resolution, file format and default settings | | | | | | | | | | |

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| Gather information about printer/scanner problems | | | | | | | | | | |
| Review and analyze collected data | | | | | | | | | | |
| Identify solutions to identified printer/scanner problems | | | | | | | | | | |
| Isolate and resolve an identified printer/scanner problem including defining the cause, applying the fix and verifying functionality | | | | | | | | | | |
| Identify appropriate tools used for troubleshooting and repairing printer/scanner problems | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (13)** | | | | | | | | | | |
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| **V. Apply knowledge of networking principles to install, configure, optimize and upgrade networks** | | | | | | | | | | |
| Tasks Instructions: | | | | | | | | | | |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Describe basic networking concepts | | | | | | | | | | |
| Identify 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 | | | | | | | | | | |
| Identify names, purposes and characteristics of basic network protocols and terminologies | | | | | | | | | | |
| Install and configure network cards (physical address) | | | | | | | | | | |
| Install, identify and obtain wired and wireless connections | | | | | | | | | | |
| Install and configure browsers | | | | | | | | | | |
| Establish network connectivity | | | | | | | | | | |
| Demonstrate the ability to share network resources | | | | | | | | | | |
| Identify tools, diagnostic procedures and troubleshooting techniques for networks | | | | | | | | | | |
| Explain status indicators, for example: speed, connection and activity lights and wireless signal strength | | | | | | | | | | |
| Identify names, purposes and characteristics of tools | | | | | | | | | | |

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| Diagnose and troubleshoot basic network issue | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (16)** | | | | | | | | | | |
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| **VI. Provide security measures for computer systems** | | | | | | | | | | |
| Tasks Instructions: | | | | | | | | | | |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Identify names, purposes and characteristics of hardware and software security | | | | | | | | | | |
| Identify names, purposes and characteristics of wireless security | | | | | | | | | | |
| Identify names, purposes and characteristics of data and physical security | | | | | | | | | | |
| Describe importance and process of incidence reporting | | | | | | | | | | |
| Recognize and respond appropriately to social engineering situations | | | | | | | | | | |
| Identify the purposes and characteristics of access control | | | | | | | | | | |
| Identify the purposes and characteristics of auditing and event logging | | | | | | | | | | |
| Install, configure, upgrade and optimize hardware, software and data security | | | | | | | | | | |
| Install and configure software, wireless and data security | | | | | | | | | | |
| Identify tool, diagnostic procedures and troubleshooting techniques for security | | | | | | | | | | |
| Diagnose and troubleshoot hardware, software and data security issues | | | | | | | | | | |
| Diagnose and troubleshoot software and data security issues | | | | | | | | | | |
| Perform preventative maintenance for computer security | | | | | | | | | | |
| Implement software security preventative maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies | | | | | | | | | | |
| Recognize social engineering situations | | | | | | | | | | |
| Address social engineering situations | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |

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| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (18)** | | | | | | | | | | |
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| **VII. Apply awareness of safety and environmental concerns surrounding computer maintenance technology** | | | | | | | | | | |
| Tasks Instructions: | | | | | | | | | | |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Identify potential safety hazards and take preventative action | | | | | | | | | | |
| Use Material Safety Data Sheets (MSDS) or equivalent documentation and appropriate equipment documentation | | | | | | | | | | |
| Use appropriate repair tools | | | | | | | | | | |
| Describe methods to handle environmental and human (e.g., electrical, chemical, physical) accidents including incident reporting | | | | | | | | | | |
| Identify potential hazards and implement proper safety procedures including ESD precautions and procedures, safe work environment and equipment handling | | | | | | | | | | |
| Identify proper disposal procedures for batteries, display devices and chemical solvents and cans | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (8)** | | | | | | | | | | |
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| **VIII. Display communication and professionalism while working in computer maintenance technology** | | | | | | | | | | |
| Tasks Instructions: | | | | | | | | | | |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| Use good communication skills, including listening and tact/discretion, when communicating with customers and colleagues | | | | | | | | | | |

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| Use clear, concise and direct statements | | | | | | | | | | |
| Allow the customer to complete statements — avoid interrupting | | | | | | | | | | |
| Clarify customer statements — ask pertinent questions | | | | | | | | | | |
| Avoid using jargon, abbreviations and acronyms | | | | | | | | | | |
| Listen to customers | | | | | | | | | | |
| Use job-related professional behavior including notation of privacy, confidentiality and respect for the customer and customer's property | | | | | | | | | | |
| *Safety and infection control are adhered to during all aspects of this task.* | | | | | | | | | | |
| *The student completed task within the time limited.* | | | | | | | | | | |
| **Points earned** | | | | | | | | | | |
| **Total possible points (9)** | | | | | | | | | | |
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| **Total points earned for all sections (A)** | | | | | | | | | | |
| **Total possible points for all sections (B) 126** | | | | | | | | | | |
| **Student/candidate score (divide A/B)** | | | | | | | | | | |