



## Job Ready Assessment Blueprint

# Computer Repair Technology



Test Code: 4415 / Version: 01

**“Measuring What Matters”**

## Specific Competencies and Skills Tested in this Assessment:

### Installing, Configuring, Upgrading

- Install, configure, optimize, and upgrade system board, power supplies, and cooling systems
- Differentiate characteristics of various processor and memory types
- Identify and configure CMOS setup and BIOS
- Identify functionality, install, and configure storage device options
- Identify and describe characteristics of various peripherals and ports used
- Display knowledge of operating system and licensing requirements



### Diagnosing and Troubleshooting

- Diagnose and identify processor and memory faults
- Demonstrate ability to isolate and resolve power supply and battery failures on the system board
- Display ability to identify and resolve storage device issues
- Identify uses of troubleshooting utilities
- Troubleshoot and resolve video and expansion card issues (i.e., drivers)
- Demonstrate ability to setup and troubleshoot external display
- Identify tools, diagnostic procedures, and troubleshooting techniques for operating system recovery and migration
- Demonstrate ability to isolate and resolve peripheral and connectivity failures
- Utilize command line techniques for diagnosing and troubleshooting
- Demonstrate the proper use of multimeters
- Identify basic electrical, transmission, and storage units of measurements

## ***Specific Competencies and Skills continued:***

### **Preventive Maintenance**

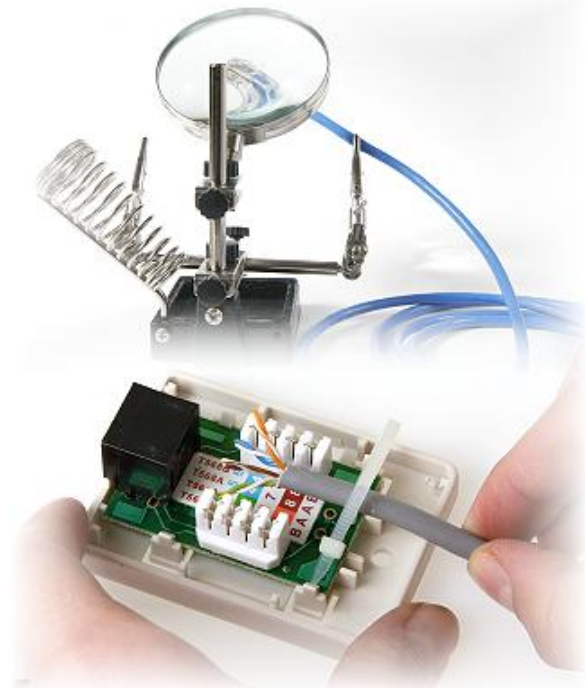
- Identify and implement proper personal and equipment safety procedures, including those involving ESD events
- Differentiate between line conditioners, UPS (uninterruptible power supply), and surge protectors
- Select and perform proper file backup procedures
- Identify the use of system monitoring and various system utilities
- Install and maintain current software patches, service packs, and upgrades
- Install and maintain current antivirus, spyware, and/or malware software
- Identify proper disposal and recycling procedures (i.e., batteries, monitors)

### **System Boards, Storage, Processors, and Memory**

- Identify processor compatibility, architecture, and upgrade issues
- Identify and differentiate memory characteristics and upgrade issues
- Identify and differentiate system board characteristics and upgrade issues
- Install and troubleshoot RAID 0, 1, 5
- Differentiate the characteristics and components of a notebook versus desktop upgrade

### **I/O (Input-Output) Devices**

- Identify uses of various input devices (i.e., digital camera, scanner, biometric devices, keyboard, mouse)
- Identify various I/O connectivity methods (i.e., HDMI, USB, wireless, Smartphone)



***Specific Competencies and Skills continued:*****Printing**

- Identify and differentiate various printers and printer processes (i.e., inkjet, laser, dot matrix)
- Identify various printer connectivity methodologies (i.e., local and network)
- Install and troubleshoot printers

**Basic Networking**

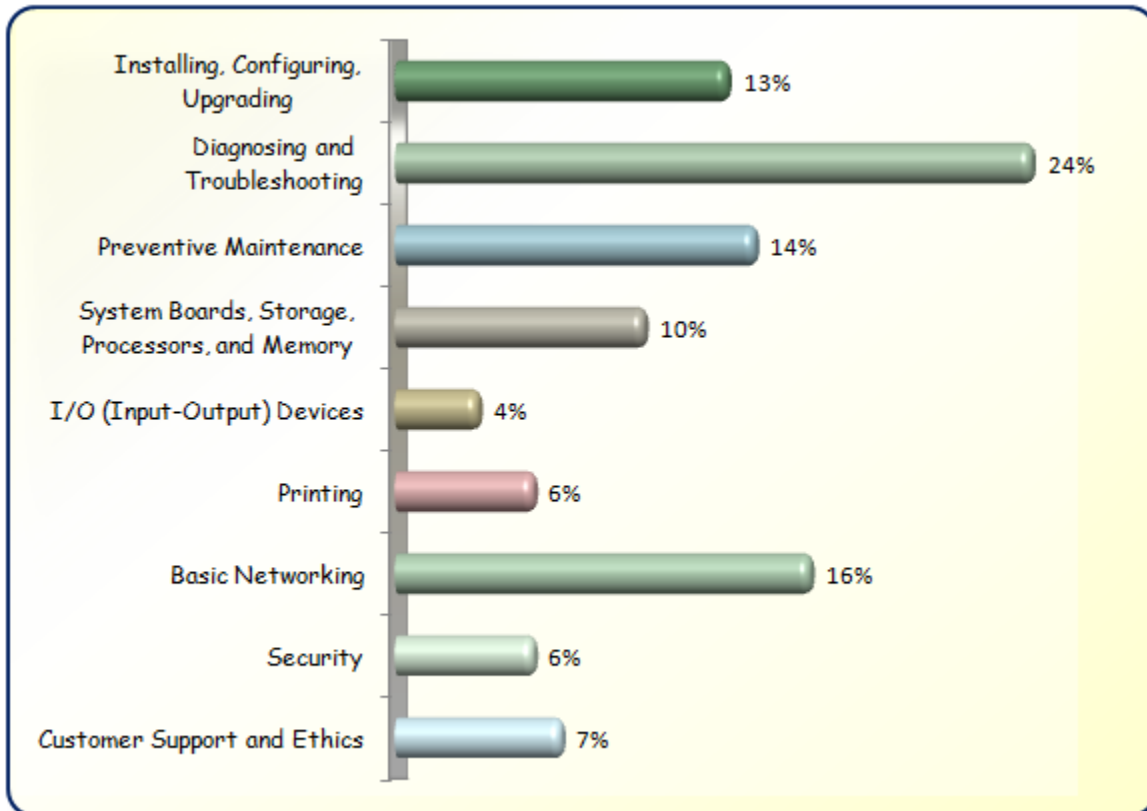
- Install, configure, and troubleshoot Network Interface Cards (NICs)
- Install, configure, and troubleshoot wired and wireless network connections
- Identify various network topologies (i.e., star, ring, mesh, bus)
- Identify various network access methods (i.e., CSMA/CD, CSMA/CA)
- Differentiate between a client/server and a peer-to-peer network
- Convert units between binary, decimal, and hexadecimal
- Identify the seven layers of the OSI model
- Install and test an email client

**Security**

- Identify and remove viruses, spyware, adware, and malware
- Isolate and resolve software firewall issues

**Customer Support and Ethics**

- Practice professional communication and customer service skills
- Practice ethical use of software and hardware (i.e., copyright laws, hacking, peer-to-peer downloading)
- Demonstrate professional behavior

**Written Assessment:****Administration Time:** 3 hours**Number of Questions:** 177**Areas Covered:**

**Sample Questions:**

A memory cell requiring refreshing because it transmits only single lines of memory is called

- A. DRAM
- B. CRAM
- C. DDORAM
- D. CCORAM

Power supplies convert line power into \_\_\_\_\_ voltage.

- A. DC
- B. GHz
- C. AC
- D. MHz

A brownout and sag are examples of

- A. too much voltage on the line
- B. a spike lasting milliseconds
- C. too little voltage on the line
- D. a major power failure

Which form factor is common for many modern CPU sockets?

- A. VGA
- B. EGA
- C. PGA
- D. DIP

When attached, some devices can draw power from the \_\_\_\_\_ port.

- A. serial
- B. USB
- C. HDMI
- D. parallel



## Performance Assessment:

**Administration Time:** 2 hours and 45 minutes

**Number of Jobs:** 3

### Areas Covered:

#### 20% Device Identification

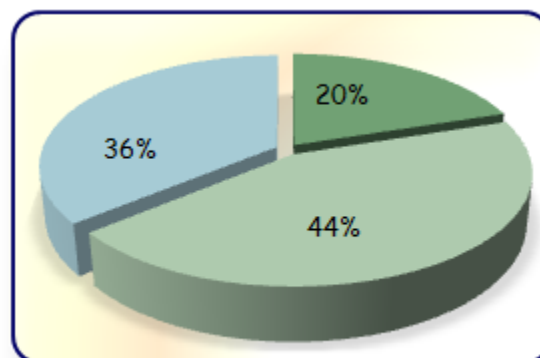
Identify computer features and time to complete Job 1.

#### 44% Installing New Hardware/Troubleshooting

Diagnose and document computer faults, verify correction of computer faults, document recommendations, and time to complete Job 2.

#### 36% Network Connectivity

Install, configure, and connect the network interface card (NIC), use IPCONFIG to check the IP address, ping the network device (school specified address) with zero packet loss, use correct tools and safety procedures, and time to complete Job 3.



**Sample Job:** Device Identification

**Maximum Time:** 45 minutes

**Participant Activity:** The participant will identify each feature of the computer and record the name next to the correct letter.



The Association for Career and Technical Education (ACTE), the leading professional organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!

