

Teacher Assessment Blueprint

Computer Repair Technology



Test Code: 5182 / Version: 01

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## General Assessment Information

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**Test Type:** The Computer Technology assessment is included in NOCTI's Teacher assessment battery. Teacher assessments measure an individual's technical knowledge and skills in a proctored proficiency examination format. These assessments are used in a large number of states as part of the teacher licensing and/or certification process, assessing competency in all aspects of a particular industry. NOCTI Teacher tests typically offer both a written and performance component that must be administered at a NOCTI-approved Area Test Center. Teacher assessments can be delivered in an online or paper/pencil format.

**Revision Team:** The assessment content is based on input from subject matter experts representing the following states: Connecticut, Kentucky, Michigan, Mississippi, and Pennsylvania.



47.0104- Computer Installation and Repair Technology/Technician



Career Cluster 11- Information Technology



15-1151.00- Computer User Support Specialists

## Written Assessment

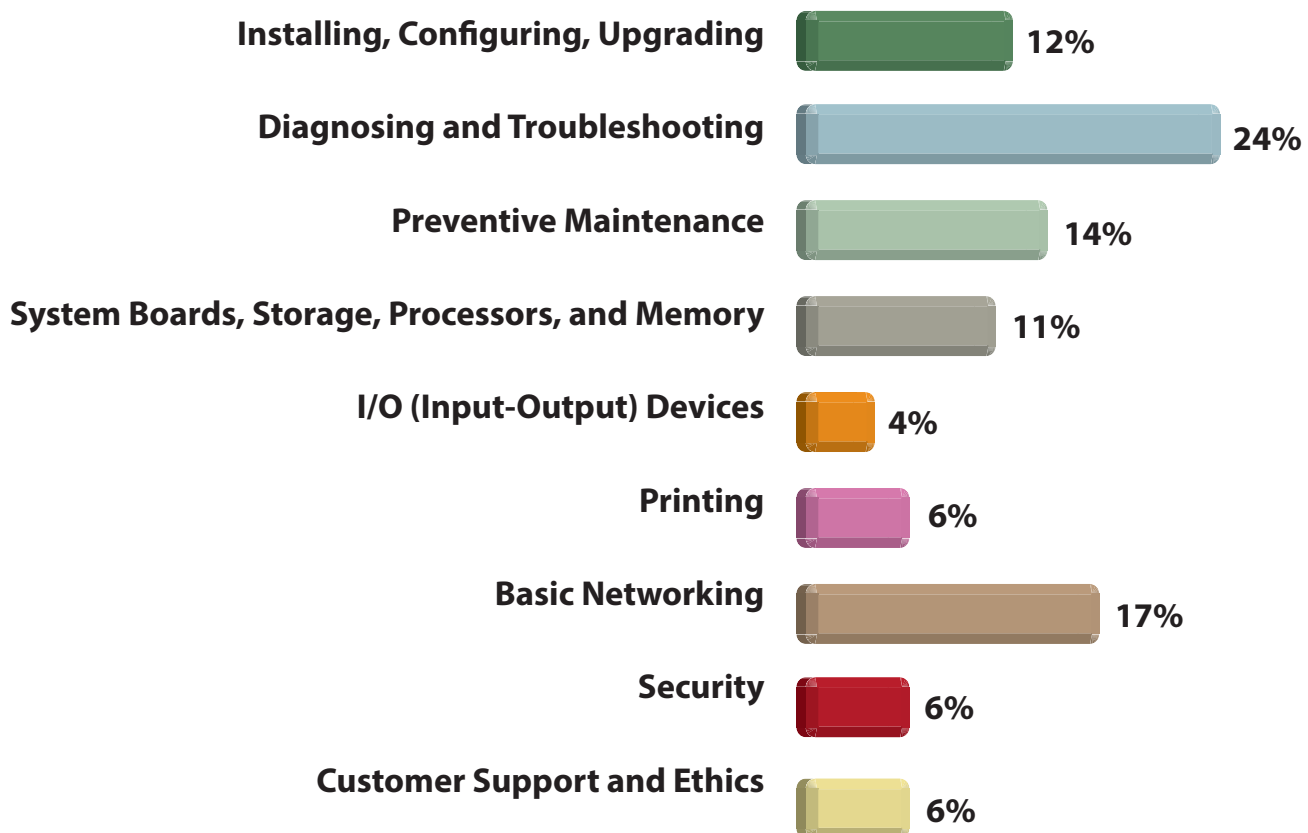
NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

**Administration Time:** 3 hours

**Number of Questions:** 172

**Number of Sessions:** This assessment may be administered in one, two, or three sessions.

### Areas Covered



## Specific Standards and Competencies Included 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 measurement



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## Specific Standards and Competencies (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)

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## Specific Standards and Competencies (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

## Sample Questions

**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

**One way to disable items that automatically run on startup is to use the \_\_\_\_\_ utility.**

- A. System Configuration
- B. Disk Manager
- C. Task Scheduler
- D. Device Manager

**A \_\_\_\_\_ is the layout, or pattern, of nodes on a network.**

- A. serial backbone
- B. physical topology
- C. logical topology
- D. distributed backbone

## Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

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

**Number of Jobs:** 3

### Areas Covered:

#### 20% Device Identification

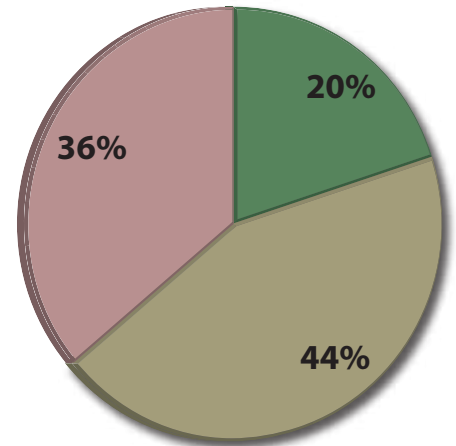
Participants will correctly identify computer features.

#### 44% Installing New Hardware/Troubleshooting

Participants will diagnose and document computer faults, verify correction of computer faults, and document recommendations.

#### 36% Network Connectivity

Participants will install, configure, and connect the network interface card, use IPCONFIG to check the IP address, ping the network device with zero packet loss, and use correct tools and safety procedures.





## 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.

