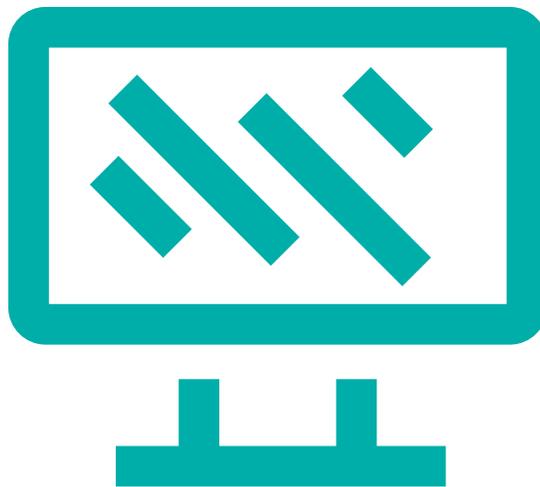




NOCTI
State Customized
Credential Blueprint



Computer Technology/Computer Systems (PA)

Code: 8299 / Version: 01
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General Assessment Information

Blueprint Contents

General Assessment Information	Sample Written Items
Written Assessment Information	Performance Assessment Information
Specific Competencies Covered in the Test	Sample Performance Job

Test Type: The Computer Technology/Computer Systems PA assessment was developed based on a Pennsylvania statewide competency task list and contains a multiple-choice and performance component. This assessment is meant to measure technical skills at the occupational level and includes items which gauge factual and theoretical knowledge.

Revision Team: The assessment content is based on input from Pennsylvania educators who teach in approved career and technical education programs.



15.1202 - Computer
Technology/Computer Systems
Technology



Career Cluster - Information Technology

Written Assessment

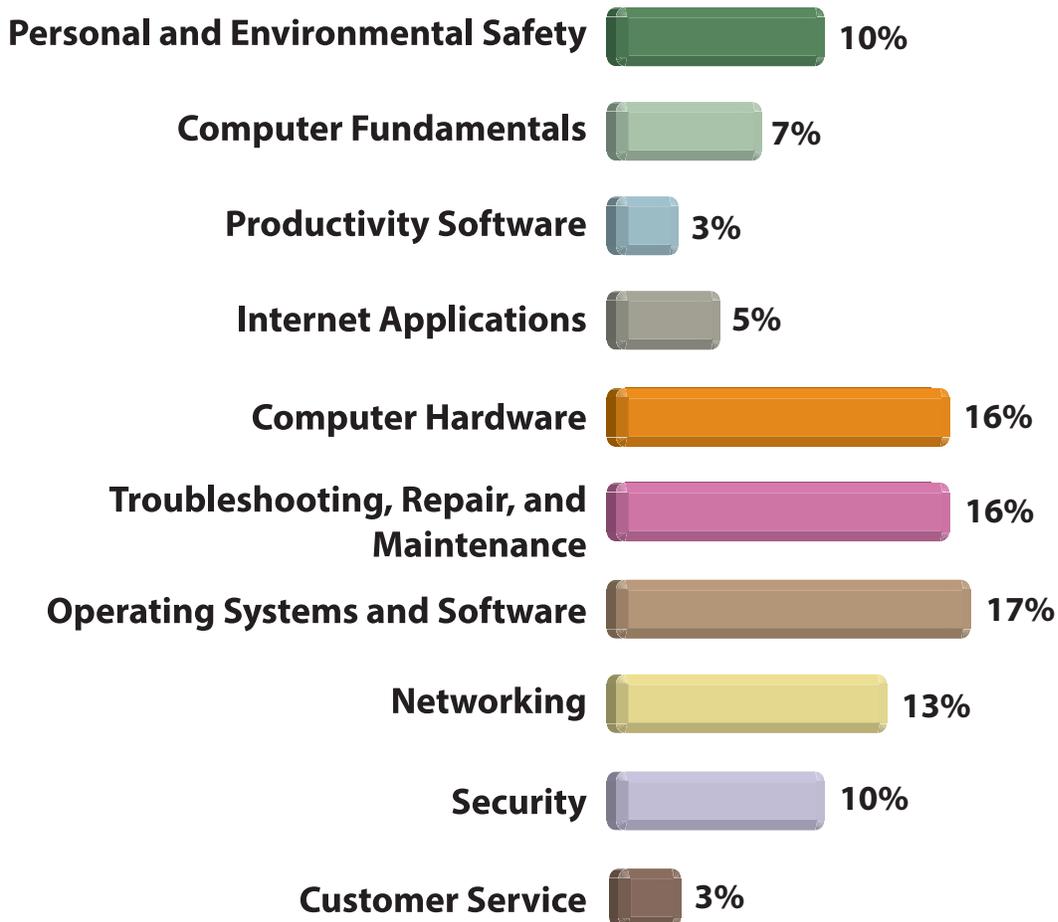
NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 3 hours

Number of Questions: 201

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

Areas Covered



Specific Standards and Competencies Included in this Assessment

Personal and Environmental Safety

- Review safety data sheets (SDS) and explain their requirements in handling hazardous materials
- Describe types of fire extinguishers and explain which types to use for extinguishing various fires
- Demonstrate safe procedures to follow when lifting and carrying heavy objects
- Identify potential hazards when working with power supplies
- Identify proper disposal procedures for batteries and display devices
- Configure a computer's power management settings to maximize energy efficiency
- Maintain a safe work area to avoid common accidents and injuries

Computing Fundamentals

- Identify the various types of computers people use in the modern world
- Identify appropriate computer equipment and peripherals for given a specific situation and budget
- Describe the interaction between software and hardware
- Identify the functions of an operating system
- Describe the various components of a graphical user interface based operating system

Productivity Software

- List and describe several common application software suites
- Demonstrate the ability to print documents using applications software

Internet Applications

- Describe appropriate email etiquette
- Describe common ethical issues with downloading legal and illegal documents software
- Demonstrate how to use a web browser to effectively search the Internet and retrieve specified information
- Describe common uses of cloud computing for work, school, and home

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Specific Standards and Competencies (continued)

Computer Hardware

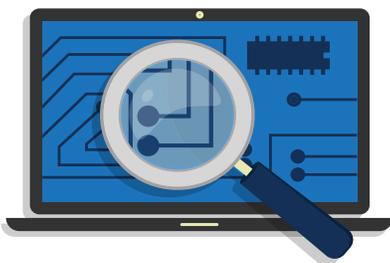
- Describe and categorize storage devices and backup media
- Explain the operation of a motherboard and its components, types, and features
- Explain the purpose and characteristics of CPUs and their functions
- Explain cooling methods and devices
- Compare and contrast memory types, characteristics, and their purpose
- Explain the characteristics of various monitors, and display devices
- Explain the function and types of adapter cards
- Explain the purpose of CPU and case fans air flow directions

Troubleshooting, Repair, and Maintenance

- Describe and explain troubleshooting theory
- Describe, explain, and interpret common hardware and operating system symptoms and their causes
- Describe and determine the troubleshooting methods and tools for printers
- Describe and interpret common laptop issues and determine appropriate basic troubleshooting method
- Describe and apply common preventative maintenance techniques for computers

Operating Systems and Software

- Compare and contrast the different operating systems and their features
- Given a scenario, demonstrate proper use of user interfaces
- Explain the process and steps to install and configure an operating system
- Explain the basics of boot sequences, methods, and startup utilities
- Select appropriate commands and options to troubleshoot and resolve problems
- Explain the difference between various operating system directory structures
- Identify and use system utilities/tools and evaluate the results
- Evaluate and resolve common OS (Operating System) and software issues



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Specific Standards and Competencies (continued)

Networking

- Describe common types of computer networks based on their scope of coverage
- Describe how computer networks, telephone networks, and the Internet are related
- Define networking fundamentals, technologies, devices, and protocols
- Describe, fabricate, and test network cables and connectors
- Compare and contrast various types of wired and wireless networks
- Demonstrate how to use the appropriate tools to troubleshoot problems of network connectivity

Security

- Explain the ethical, legal, and security issues related to handling data
- Identify security features including wireless encryption, and malicious software protection
- Identify security, password management, locking workstations, and biometrics
- Troubleshoot, remove, and prevent viruses and malware
- Implement security and troubleshoot common issues
- Describe ethical, security, and privacy issues involved in posting personal information

Customer Service

- Demonstrate the use of effective communication with customers
- Utilize the team approach to deliver customer service



Sample Questions

What class of fire extinguisher should be used in an electrical or computer fire?

- A. Class A
- B. Class B
- C. Class C
- D. Class D

A device that continually protects a PC against electrical spikes and provides backup power is a/an

- A. UPS
- B. AC97
- C. SPS
- D. DSP

A/An _____ storage device uses a laser beam to read and write data.

- A. optical
- B. solid state
- C. external
- D. magnetic

A critical component to effective teamwork is

- A. arrogance
- B. mirroring
- C. role playing
- D. preparation

Peer-to-peer networks

- A. do not share resources
- B. allow workstations to share and access resources without a dedicated server
- C. are optimized for sharing resources from a single computer with many users
- D. are remotely administered

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Sample Questions (continued)

What software is required to access .pdf files?

- A. Real Player
- B. Direct X
- C. Acrobat Reader
- D. Internet Explorer

The use of all caps in an email message is commonly understood as

- A. laziness
- B. important
- C. shouting
- D. humorous

The final step a technician takes when troubleshooting a user's problem is

- A. test theories
- B. document the solution
- C. develop an action plan
- D. gather information

Which of the following operating systems is considered open source?

- A. Windows® 7
- B. OS X
- C. LINUX
- D. UNIX

A computer designed to handle client print jobs in the most efficient manner is a

- A. PC shared printer
- B. client access printer
- C. dedicated print server
- D. network plan

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 35 minutes

Number of Jobs: 4

Areas Covered:

19% Components and Tools Identification

Participants will identify a variety of computer components and tools and record the name of each item.

19% Assemble a Network Cable

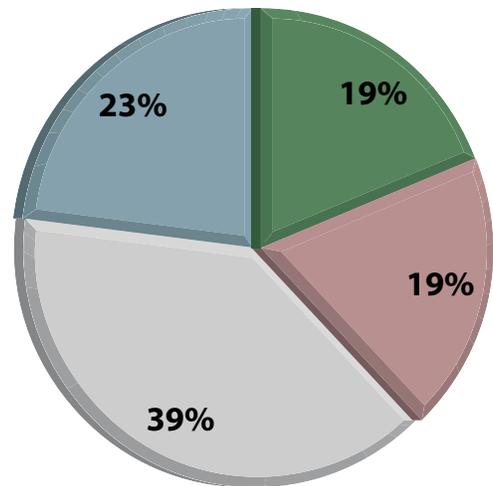
Participants will use proper safety procedures to select materials and construct a straight-through patch cable according to industry standards.

39% Troubleshooting and Software Installation

Participants will diagnose and repair a computer that will not boot to a new hard drive. Steps will include creating a limited user account with password, verifying the network card is properly installed, and installing a virus protection software package.

23% Using Productivity Software

Participants will use a word processing application to prepare a computer repair document. Steps will include using font, margins, and clipart files as shown in the example provided.



Sample Job

Components and Tools Identification

Maximum Time: 25 minutes

Participant Activity: Participants will identify each feature or component of the computer and record the name next to the correct letter. Participants will complete the same process identifying computer tools.

