

# Massachusetts CTE Teacher Testing Program

## Information Support Services & Networking Content Outline

### Written and Performance Exam General Overview

- The intent of this exam is to assess the candidate’s ability to teach the skills found in the Massachusetts Technical Education Framework.
- The written exam is a state-developed exam aligned to the frameworks which can be accessed [here](#). The performance exam is a NOCTI-developed teacher test and has been determined by DESE to align to the state frameworks.
- Many questions and tasks require a synthesis of knowledge based on experience in the field and may not be found in any book.
- Use this exam outline and the Massachusetts Technical Education Framework to focus your preparation for the exams.
- Candidates are encouraged to prepare for their written exam by reviewing textbooks and reference material which have been listed as part of this exam outline. These resources can be found using online search tools, online vendors, and websites.

### Written Exam

- Number of Questions: 100
- Passing Score: 70.0%
- Administration Method: Remote Proctored Online Testing Session

### Written Exam Content Coverage

<b>4%</b>	<b>Health and Safety and Operational Procedures</b>	<ul style="list-style-type: none"> <li>• Health and Safety Practices</li> <li>• Environmental Impacts</li> <li>• Professional Communication Practices</li> </ul>
<b>8%</b>	<b>Computer Hardware</b>	<ul style="list-style-type: none"> <li>• BIOS Settings</li> <li>• Motherboard Components</li> <li>• Peripheral Devices</li> <li>• CPU Types and Cooling Devices</li> <li>• Storage Devices and Media</li> <li>• RAM</li> <li>• Install Expansion Cords</li> </ul>
<b>3%</b>	<b>Laptops</b>	<ul style="list-style-type: none"> <li>• Types</li> <li>• Installation</li> <li>• Components</li> </ul>
<b>3%</b>	<b>Printers</b>	<ul style="list-style-type: none"> <li>• Types</li> <li>• Installation</li> <li>• Components</li> </ul>

- 15% Desktop Operational Systems**
  - Install and Configure OS
  - Features and Requirements
  - System Features and Tools
- 4% Security**
- 3% Mobile Devices**
- 30% Network Concepts**
  - Common Network Protocols
  - OSI and TCP/IP
  - IP Addressing
  - IPV6
- 14% Network Media and Topologies**
  - Network Cables
  - Internet Connection Types and Features
- 2% Network Installation and Configuration**
  - OS Installation
- 2% Network Management**
- 8% Troubleshooting**
  - Connectivity Issues
- 1% Applications**
- 3% Advanced Routing and Switching**
  - Implement a Switched Network

### Written Exam Reference Materials (Reference Current Edition)

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- **A Guide to Designing and Implementing LOCAL and WIDE AREA NETWORKS** by Michael Palmer and Robert Bruce Sinclair (COURSE Technology ISBN # 0-7600-1093-5)
- **Network + Guide to Networks COURSE Technology** (Thompson Learning ISBN # 0-619-21743-X)
- **The Complete Guide to Networking and Network +. Second Edition** by Michael Graves (Thomson/Delmar Learning ISBN # 01-4180-1944-5)
- **Upgrading and Repairing PCs** by Scott Mueller (QUE)
- **Upgrading and Repairing Networks** by Terry Ogletree (QUE)

<p><b>Note:</b> Additional comprehensive reference materials may be obtained through the Internet.</p>
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## Materials Needed for the Written Exam

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- A four-function calculator is included in the online testing system. No other calculators are permitted.
- Scrap paper and pencil/pen are permitted.

## Written Exam Sample Items

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Each question on the exam consists of one incomplete sentence or question followed by four choices. Some items reference an image or diagram. A few sample items are included below; the correct answer is designated with an asterisk (\*).

With a subnet mask of 255.255.255.248, which of the following would be a broadcast address?

- a. 212.124.30.33
- b. 212.124.30.159 (\*)
- c. 212.124.30.195
- d. 212.124.30.221

Of the following, which device would be used to typically extend the physical distance of a LAN?

- a. Bridge
- b. Hub
- c. Router
- d. Repeater (\*)

## NOCTI Performance Exam

- Administration Time: 2 hours
- NOCTI Criterion-Referenced Cut Score/Passing Score: 89%
- Administration Method: Onsite at a DESE approved Massachusetts Area Testing Center (MATC) location. Candidates must register and schedule their exam session through NOCTI.

## Performance Exam Content Coverage

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### **39% Select and Connect Equipment to Set Up a Simple LAN with Two Workstations**

*Participant will select appropriate equipment, assign a private IPv4 Class C address and subnet, record the results, verify IP connectivity, verify that the network was created, and leave the IP connectivity results on screen for evaluator review.*

### **61% Set Up a Workgroup, Create Users, Create Shares, and Install a Printer**

*Participant will name the workstations, make each workstation a member of workgroup named NOCTI, create users, create folders/directories, create a share, grant control permission to folders/directories, attempt to access folders/directories, install plug-and-play printer, make default, share, and print to verify correct set-up/functionality.*

## Performance Exam Requirements

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### Candidate Supplied

Candidates must bring all appropriate Personal Protective Equipment (PPE), attire/uniform, and any other safety items as is routinely expected to be used by an employee in the related industry. If the candidate does not bring what is needed to safely complete all jobs on the exam as required in the workplace, the testing session will need to be rescheduled at the candidate's expense.

### Site Supplied

Additional equipment and supplies needed to complete the jobs on the performance test will be provided by the testing site.

## Performance Exam Site Requirements

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Testing sites may have individual requirements based on location and any relevant and current guidance from the Center for Disease Control and Prevention (CDC).