MASSACHUSETTS VOCATIONAL TECHNICAL TEACHER TESTING PROGRAM

SCOPE OF TEST CODE #25 – INFORMATION SUPPORT SERVICES & NETWORKING

WRITTEN EXAM – 100 QUESTIONS

TIME ALLOWED: 3 HOURS

PERCENT OF TEST:

4% Health and Safety and Operational Procedures
   - Health and Safety Practices
   - Environmental Impacts
   - Professional Communication Practices

8% Computer Hardware
   - BIOS Settings
   - Motherboard Components
   - Peripheral Devices
   - CPU Types and Cooling Devices
   - Storage Devices and Media
   - RAM
   - Install Expansion Cords

3% Laptops
   - Types
   - Installation
   - Components

3% Printers
   - Types
   - Installation
   - Components

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

2% Applications

2% Advanced Routing and Switching
  - Implement a Switched Network

THE INTENT OF THIS EXAM IS TO ASSESS YOUR ABILITY TO TEACH THE SKILLS FOUND IN THE MASSACHUSETTS VOCATIONAL TECHNICAL EDUCATION INFORMATION SUPPORT SERVICES & NETWORKING FRAMEWORK. ALL EXAMS ARE ALIGNED WITH THE MATCHING FRAMEWORK.

SOME QUESTIONS REQUIRE A SYNTHESIS OF KNOWLEDGE BASED ON EXPERIENCE IN THE FIELD AND MAY NOT BE FOUND IN ANY BOOK. HOWEVER, CANDIDATES ARE ENCOURAGED TO PREPARE FOR THEIR EXAMS BY REVIEWING TEXTBOOKS AND REFERENCE MATERIAL WHICH HAS BEEN LISTED AS PART OF THIS EXAM OUTLINE. THESE RESOURCES CAN BE FOUND USING ONLINE SEARCH TOOLS, ONLINE VENDORS AND WEBSITES. CONTACT THE VOCATIONAL TECHNICAL TEACHER TESTING OFFICE IF YOU NEED FURTHER ASSISTANCE IN LOCATING RESOURCES LISTED IN THE EXAM OUTLINE. USE THE EXAM OUTLINE AND THE MA VOCATIONAL TECHNICAL EDUCATION FRAMEWORKS TO FOCUS YOUR PREPARATION FOR THE EXAM.

You may refer to http://www.doe.mass.edu/cte/frameworks for the Massachusetts Vocational Technical Educator Frameworks.
THE FOLLOWING LIST OF REFERENCE MATERIALS WAS DEVELOPED AS A GUIDE FOR WRITTEN EXAM CANDIDATES:


Network + Guide to Networks, Fourth Edition COURSE Technology
Thompson Learning (ISBN # 0-619-21743-X)


UPGRADING and REPAIRING PCs Sixteenth Edition by Scott Mueller, QUE

UPGRADING and REPAIRING NETWORKS Third Edition by Terry Ogletree, QUE

Note: Additional comprehensive reference materials may be obtained through the internet.

The written exam consists of 100 multiple choice questions. Each question consists of one incomplete sentence or a questions followed by four choices. Listed below are several sample items:

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

   * indicates correct answer

THE TEACHER TESTING PROGRAM WILL PROVIDE NON-PROGRAMMABLE CALCULATORS FOR USE IN COMPLETING THE WRITTEN EXAM. DOCUMENTATION REGARDING THESE CALCULATORS WILL BE INCLUDED IN YOUR ADMISSION PACKAGE.
MASSACHUSETTS VOCATIONAL TECHNICAL TEACHER TESTING PROGRAM

SCOPE OF TEST CODE #25 INFORMATION SUPPORT SERVICES & NETWORKING

PERFORMANCE EXAM

TIME ALLOWED: 4 ½ HOURS

PERCENT OF TEST:

28% PART I: PEER-TO-PEER INSTALLATION

CABLING TECHNIQUES
- Connect a RJ-45 UTP connector on each end of a CAT-5 CROSSOVER Cable using EIA/TIA standard color code.

HARDWARE INSTALLATION
- Connect and Configure a Wireless Printer on One Computer

WINDOWS 10 PROFESSIONAL INSTALLATION
- Install WINDOWS 10 PROFESSIONAL on Two Computers.

PEER-TO-PEER CONFIGURATION
- Configure both Computers in a PEER-TO-PEER Configuration.
- Demonstrate File Sharing and access to printing on each Computer.

37% PART II: WINDOWS 2012 R2 SERVER INSTALLATION

WINDOWS 2012 R2 SERVER SOFTWARE INSTALLATION
- Install WINDOWS 2012 R2 SERVER SOFTWARE on the Server PC.
- Connect two Client PCs to a Server PC USING a 4-Port Switch.

WINDOWS 2012 R2 SERVER – Active Directory
- Configure the WINDOWS 2012 SERVER, INSTALL ACTIVE DIRECTORY AND DHCP SERVICE On the WINDOWS 2012 SERVER:
  • Create User Accounts
  • Create and Share Folders
  • Set NTFS Permissions
  • Set Logon Hours
  • Map a Drive to a home folder
  • Have Client PCs join the SERVER Domain
  • Change Password Settings Using Global Policies

35% PART III: COMPUTER CONSTRUCTION

CONSTRUCT A WORKING COMPUTER
- Install FAN and Memory Module on Motherboard
- Install Motherboard into Case
- Install Video Adapter and Drivers
- Install Hard Drive and CD-Rom Drive into Case
- Install Various Drivers as needed (i.e. Video, Audio, LAN etc.)
- Install and Configure a Linksys Wireless Router and Wireless Adapter
THE INTENT OF THIS EXAM IS TO ASSESS YOUR ABILITY TO TEACH THE SKILLS FOUND IN THE MASSACHUSETTS VOCATIONAL TECHNICAL EDUCATION INFORMATION SUPPORT SERVICES & NETWORKING FRAMEWORK. ALL EXAMS ARE ALIGNED WITH THE MATCHING FRAMEWORK.

PERFORMANCE EXAM CANDIDATES WILL BE ASSESSED ON THEIR COMPLETION OF THE EXAM TASKS AND THEIR DEMONSTRATION OF INDUSTRY AND OSHA RECOMMENDED SAFETY PROCEDURES.

SOME QUESTIONS REQUIRE A SYNTHESIS OF KNOWLEDGE BASED ON EXPERIENCE IN THE FIELD AND MAY NOT BE FOUND IN ANY BOOK. HOWEVER, CANDIDATES ARE ENCOURAGED TO PREPARE FOR THEIR EXAMS BY REVIEWING TEXTBOOKS AND REFERENCE MATERIAL WHICH HAS BEEN LISTED AS PART OF THIS EXAM OUTLINE. THESE RESOURCES CAN BE FOUND USING ONLINE SEARCH TOOLS, ONLINE VENDORS AND WEBSITES. CONTACT THE VOCATIONAL TECHNICAL TEACHER TESTING OFFICE IF YOU NEED FURTHER ASSISTANCE IN LOCATING RESOURCES LISTED IN THE EXAM OUTLINE. USE THE EXAM OUTLINE AND THE MA VOCATIONAL TECHNICAL EDUCATION FRAMEWORKS TO FOCUS YOUR PREPARATION FOR THE EXAM.

TOOLS AND MATERIALS SUPPLIED

All tools and materials necessary to successfully complete this exam will be available at the exam site; however candidates have the option of bringing/using any of their own personal tools and/or equipment.

1. Three (3) Computers with:
   - Windows 10 Professional & Windows 2012 R2 Server
   - (Installation Files Pre-loaded Bootable on Flash Drive)
2. One (1) Wireless Printer
3. Cable (CAT-5) and RJ-45 UTP Connectors
4. Three (3) Network Cards (ALL INSTALLED ON THE THREE COMPUTERS)
5. One (1) Switch and assorted lengths of UTP Cable
6. One (1) Computer Case with Power Supply
   One (1) Motherboard (System Board) with installed CPU
   One (1) Fan (Cooler)
   One (1) Linksys Wireless Router
   One (1) Linksys Wireless Adapter
   Assorted RAM Memory Modules
   One (1) Video Display Card (PCI-E)
   One (1) Sata Hard Drive (160 to 500 Gbytes)
   One (1) Combo DVD/DRW Drive
   Assorted Sata Cables and various Peripheral Cards
7. Assorted Hand Tools – Screwdriver, Crimper, Stripper, Diagonal Cutters, etc.

NO BOOKS OR WRITTEN MATERIALS WILL BE ALLOWED IN THE TEST AREA.

APPROPRIATE WORKING ATTIRE AND SAFETY GLASSES MUST BE WORN AND ARE THE RESPONSIBILITY OF THE CANDIDATE.

CALCULATORS ARE ALLOWED AND WILL BE PROVIDED AT THE EXAM SITE.

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