

State Collaboration Assessment Blueprint

IT Exploration



Test Code: I170 / Version I

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Test Type: The IT Exploration assessment was developed jointly by NOCTI and the Minnesota State Colleges and Universities system, and is offered for use by all NOCTI customers. This assessment is administered through QuadNet™, NOCTI's online testing system and assesses knowledge and skills at a broader level than an occupational-specific assessment such as Computer Networking, Computer Programming, or Computer Technology.

Revision Team: The assessment content is based on input from secondary, post-secondary, and business/industry representatives from the state of Minnesota.



11.9999 - Computer and Information
Sciences and Support Service, Other



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!

Written Assessment

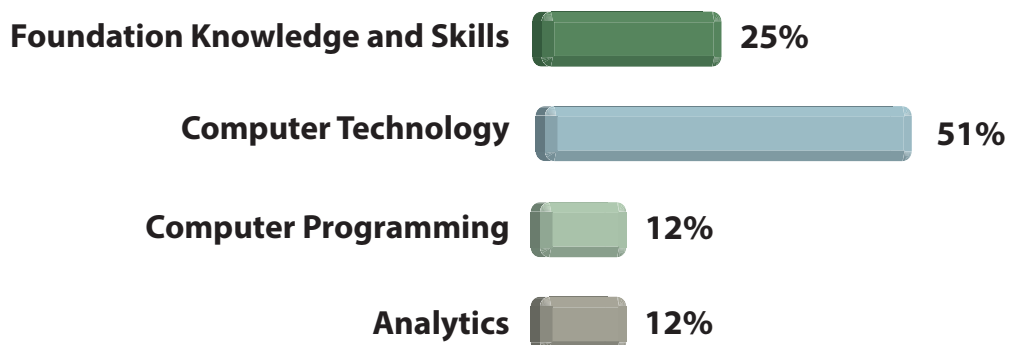
Written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 2 hours

Number of Questions: 120

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

Areas Covered



Specific Standards and Competencies Included in this Assessment

Foundation Knowledge and Skills

- Basic troubleshooting
- Identify types of number systems and units of measure and transmission rates
- Demonstrate how to use a web browser to effectively search the Internet and retrieve specified information
- Demonstrate the use of effective communication strategies with customers and employees (e.g., appropriate email etiquette, team collaboration, face-to-face communication)
- Demonstrate understanding of safety procedures to maintain a safe work area to avoid common accidents and injuries (e.g., electro-static discharge events, personal protection equipment, proper body mechanics)
- Understand and explain the differences between public and private data and the ethical, legal, security, and privacy issues involved in sharing information
- Practice ethical use of software and hardware (e.g., copyright laws, hacking, peer-to-peer downloading)
- Identify the various types of computers and computing technologies



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Specific Standards and Competencies (continued)

Computer Technology

- Identify the functions and characteristics of a computer system and its parts (e.g., motherboard, CPU)
- Identify computer equipment and peripherals
- Understand the connectivity methods to attach computer peripherals (e.g., wired, wireless, ports, expansions)
- Display knowledge of different operating systems and licensing requirements (e.g., GNU, EULA, end user license agreement)
- Identify the functions of an operating system and the interaction with software and hardware
- Identify and describe common applications and software suites
- Describe common uses of cloud computing for work, school, and home
- Identify, categorize, and use storage and backup media
- Explain cooling methods and devices, including CPUs, case fans, and air flow directions
- Compare and contrast the characteristics and the purpose of memory types
- Demonstrate proper use of user interfaces within a given scenario
- Describe the common types of computer networks and the convergence of network types (e.g., peer-to-peer/client server, topology, telecommunication/telephony)
- Understand the importance of physical security and access control (e.g., bolt lock, safety cables, cable locks)
- Understand the importance of logical security and access control (e.g., passwords, biometrics, permissions)
- Understand host and network security (e.g., anti-malware, firewall, logging)
- Utilize command line techniques to identify configuration and connectivity settings
- Understand the need and process for maintaining current software (e.g., patches, service packs, upgrades, and updates)

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Specific Standards and Competencies (continued)

Computer Programming

- Develop a digital solution to a problem (e.g., flow charting, algorithm, pseudo code)
- Follow programming logic for the outcome (e.g., if/then, looping, variables)
- Identify the different language types and classifications for various platforms and operating systems (e.g., generations of languages, coding for mobile and web)
- Understand basic command line, tasks, and batch files

Analytics

- Describe the history and evolution of data science, analytics, and big data computing
- Understand the various types of analytics including descriptive, predictive, prescriptive
- Understand and describe the use of data science and analytics across various business and occupational domains
- Understand and describe the components of the multidimensional D.A.T.A. framework illustrating how organizations use data science and analytics to support business strategy, management, and operations
- Apply common spreadsheet analysis skills



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Sample Questions

The ping command is used for

- A. verifying that a specific host is reachable
- B. running a process on a remote computer
- C. checking the number of hops between computers
- D. checking to see whether a password is valid

A properly attached wrist strap decreases the chance of

- A. VPN
- B. SIP
- C. PAN
- D. ESD

Once a user purchases software with a single-use license, the user may

- A. copy the software to another DVD or thumb drive to be used as a backup
- B. allow a coworker to copy the software onto another computer
- C. allow a family member to copy the software onto another computer
- D. copy the software to a network for further distribution

Clock rate is the speed at which the processor

- A. operates the memory bus
- B. accesses the memory cache
- C. operates onboard the CPU
- D. measures RAM

Software used for a specific purpose is called a/an

- A. macro device
- B. application
- C. translator
- D. micro device

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Sample Questions (continued)

When designing a telecommunications room, _____ should be considered.

- A. building height
- B. color theory
- C. physical security
- D. solar exposure

A mathematical formula used to encrypt or decrypt data is called a/an

- A. equation
- B. stream
- C. signature
- D. algorithm

In IPv4 networks, the IP address of the virtual loopback interface on a computer is by default set to

- A. 127.0.0.0
- B. 127.0.0.1
- C. 128.0.0.0
- D. 128.0.0.1

When adding a new client to a contact management database, information added that is specific to the new client constitutes a new

- A. file
- B. field
- C. record
- D. table

In a spreadsheet, the intersection of a row and a column is called a

- A. unit
- B. cell
- C. coordinate
- D. block