## Overview
The ability to evaluate the needs of an organization and then design and implement network solutions is a valuable skill in today's connected workplace. This event provides recognition for FBLA members who demonstrate an understanding of and ability to apply these skills.

This is a team event composed of two or three members. This event consists of two parts: an objective test and a performance. The objective test is taken collaboratively by the team members and the top fifteen teams scoring the highest on the objective test will advance to the final round and participate in the performance component.

## Competencies and Task Lists
http://www.fbla-pbl.org/docs/ct/FBLA/NETWORKDESIGN.pdf

## Website Resources
* Network Design for Homes and Businesses
  http://compnetworking.about.com/od/networkdesign/Network_Design.htm
* Network Design Manual
  http://www.networkcomputing.com/netdesign/series.htm
* Network Management Definitions
  http://whatis.techtarget.com/glossary/network-management-category-.html

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## NETWORK DESIGN SAMPLE QUESTIONS

1. In which phase of network design does the network analyst interview users and technical personnel to gain an understanding of the business and technical goals?
   a. physical design
   b. test, optimize, and document the design
   c. analyze requirements
   d. logical design

   **Competency:** Network Installation - Planning and Configuration

2. Which phase of network design deals with network layer addressing and switching and routing protocols?
   a. test, optimize, and document the design
   b. analyze requirements
   c. logical design
   d. physical design

   **Competency:** Network Installation - Planning and Configuration

3. Which phase of network design involves investigation of service providers?
   a. test, optimize, and document the design
   b. analyze requirements
   c. physical design
   d. logical design

   **Competency:** Network Installation - Planning and Configuration

4. Which phase of network design involves building a prototype?
   a. physical design
   b. logical design
   c. analyze requirements
   d. test, optimize, and document the design

   **Competency:** Network Installation - Planning and Configuration

5. What is the name given to the reflective material surrounding the glass or plastic core of a fiber optic cable?
   a. kevlar
   b. cladding
   c. sheath
   d. buffer

   **Competency:** Network Installation - Planning and Configuration

6. Which type wiring runs between floors in a multi-floor structure?
   a. patch
   b. horizontal
   c. vertical
   d. cross-connect

   **Competency:** Network Installation - Planning and Configuration

7. Which type of wiring runs from telecommunications closets to wall plates in offices?
   a. cross-connect
   b. horizontal
   c. patch
   d. vertical

   **Competency:** Network Installation - Planning and Configuration

8. Considering the OSI model, which one of the following would be associated with the Segment as a request for a web page leaves the source PC?
   a. fe80::219:b9ff:fe20:33cf
   b. 192.168.23.1
   c. 00-19-B9-20-33-CF
   d. 3877

   **Competency:** Problem Solving/Troubleshooting

9. Which one of the following is a low-level operating system commonly used for testing and troubleshooting on a Cisco router?
   a. ROMMON
   b. BIOS
   c. bootstrap
   d. POST

   **Competency:** Problem Solving/Troubleshooting

10. Which UNIX command will display the IP address and other configuration information about your host's connection to the network?
   a. ifconfig
   b. finger
   c. echo ip
   d. ipconfig

   **Competency:** Problem Solving/Troubleshooting

11. Which Windows utility allows a user to query the configured name server to resolve a given host name?
   a. nbtstat
   b. netstat
   c. ipconfig
   d. nslookup

   **Competency:** Problem Solving/Troubleshooting

12. What Windows command will display the contents of the locally cached DNS entries?
   a. ipconfig –dns
   b. ifconfig
   c. ipconfig /all
   d. ipconfig /displaydns

   **Competency:** Problem Solving/Troubleshooting

13. Which one of the following is the result of attaching the name of a host to a domain name with a period in between them?
   a. socket address
   b. resource index
   c. fully qualified domain name
   d. A-type record

   **Competency:** Network Administrator Functions

14. Which one of the following is **not** a component of the Network Security Wheel used for security policy compliance?
   a. test
   b. secure
   c. monitor
   d. budget

   **Competency:** Network Administrator Functions

15. Which one of the following terms describes reducing the size of a file?
   a. file decompression
   b. file indexing
   c. file encryption
   d. file compression

   **Competency:** Network Administrator Functions

16. Which one of the following practices creates a starting point for ongoing evaluation of your network's health?
    a. asset management
    b. fault management
    c. base lining
    d. change management

    **Competency:** Network Administrator Functions

17. Which one of the following practices describes recording the operating system version which is installed on all switches and routers on your network?
    a. configuration management
    b. asset management
    c. systems management
    d. change management

    **Competency:** Network Administrator Functions

18. Which one of the following is **not** a private IP address?
    a. 172.31.40.23
    b. 192.168.40.23
    c. 10.0.40.23
    d. 172.32.40.23

    **Competency:** Network Administrator Functions

19. Which NAT addressing term is used to refer to a host on the local network?
    a. inside local
    b. inside global
    c. outside global
    d. outside local

    **Competency:** Configuration of Internet Resources

20. Which term describes the security policy that permits access through all ports **except** those explicitly denied?
    a. permissive
    b. restrictive
    c. authorized
    d. open

    **Competency:** Configuration of Internet Resources

21. Which protocol allows P2P applications to search for shared resources on peers across the Internet?
    a. FindMe
    b. Gnutella
    c. Pickles
    d. Xterra

    **Competency:** Configuration of Internet Resources

22. Which term is used to describe fiber optic cable that is **not** in use or has **not** been terminated?
    a. white fiber
    b. dark fiber
    c. free fiber
    d. open fiber

**Competency:** Configuration of Internet Resources

23. Which subnet mask is used to identify the range of class B private IP addresses?
    a. 255.255.0.0
    b. 255.240.0.0
    c. 255.0.0.0
    d. 255.255.255.0

**Competency:** Configuration of Internet Resources

24. Which one of the following statements best describes the backup process?
    a. copying data to media that is stored on the same device
    b. copying data to media that is not stored on the device
    c. moving data to media that is not stored on the same device
    d. moving data to media that is stored on the same device

**Competency:** Backup and Disaster Recovery

25. Which type backup process archives all selected files that have changed since the last full or incremental backup and does **not** reset the archive bit?
    a. full
    b. incremental
    c. differential
    d. copy

**Competency:** Backup and Disaster Recovery

26. Which one of the following terms describes a specialized storage device or group of storage devices that provides a centralized fault-tolerant data storage for a network?
    a. Fiber-Channel Storage
    b. Storage Area Networks
    c. Local Attached Storage
    d. Network Attached Storage

**Competency:** Backup and Disaster Recovery

27. Which one of the following describes data storage redundancy through a process involving writing data across multiple disks and using an error correction code (parity) stored on a single disk?
    a. RAID level 1
    b. RAID level 3
    c. RAID level 5
    d. RAID level 2

**Competency:** Backup and Disaster Recovery

28. Which type backup process archives all selected files and folders and resets the archive bit?
    a. differential
    b. copy
    c. full or normal
    d. incremental

    **Competency:** Backup and Disaster Recovery

29. Which one of the following is **not** a step in the DHCP messaging process?
    a. DHCP offer
    b. DHCP request
    c. DHCP decline
    d. DHCP discover

    **Competency:** Configuration Network Resources & Services

30. The DHCP request message is sent as a broadcast. What is the purpose of it being a broadcast rather than a unicast?
    a. to let all DHCP servers know which IP address is being accepted by the client
    b. to let all DHCP servers and all other DHCP clients know which IP address is being accepted by the client
    c. because the address of the DHCP server is unknown
    d. to let all DHCP clients know which IP address is being accepted

    **Competency:** Configuration Network Resources & Services