

COMPUTER NETWORK TECHNOLOGY (300)

REGIONAL – 2016

TOTAL POINTS _____ (500)

Failure to adhere to any of the following rules will result in disqualification:

- 1. Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.**
- 2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.**
- 3. Electronic devices will be monitored according to ACT standards.**

No more than 60 minutes testing time

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**Identify the letter of the choice that best completes the statement or answers the question.
Mark A if the statement is true. Mark B if the statement is false.**

1. The protocols that use a three-way handshake to transfer information can be found within which layer of the OSI model?
 - A. Layer 2
 - B. Layer 3
 - C. Layer 4
 - D. Layer 5

2. Which of the following separates broadcast domains?
 - A. Port mirroring
 - B. Router
 - C. Convergence
 - D. Switch

3. Which of the following commands can a technician use on a Windows 2012 server to display the default router address?
 - A. ping
 - B. nslookup
 - C. ipconfig
 - D. arp

4. Which of the following protocols is commonly used for VoIP technology?
 - A. Telnet
 - B. SMTP
 - C. SIP
 - D. SNMP

5. When a technician is troubleshooting a problem, which of the following is the *next* step after verifying full system functionality?
 - A. Establish a plan of action to resolve the problem and identify potential effects.
 - B. Implement the solution.
 - C. Establish a theory of probable cause.
 - D. Document findings, actions, and outcomes.

6. A network technician is troubleshooting a problem and has just established a plan of action to resolve the problem. Which of the following is the *next* step in the troubleshooting methodology?
 - A. Verify full system functionality and, if applicable, implement preventative measures.
 - B. Implement the solution or escalate as necessary.
 - C. Document findings, actions, and outcomes.
 - D. Establish a theory of probable cause.

7. Which of the following ports is the default telnet port?
 - A. 20
 - B. 21
 - C. 22
 - D. 23

8. A bridge handles frames at which of the following layers of the OSI model?
 - A. Network
 - B. Session
 - C. Transport
 - D. Data Link

9. Which of the following is a method to prioritize network traffic coming from VoIP phones?
 - A. PAT
 - B. DNS
 - C. SIP
 - D. QoS

10. A technician is checking newly installed CAT5e cabling, and suspects that some of the ends were not properly terminated. Which of the following tools will verify this?
 - A. Cable tester
 - B. Toner probe
 - C. OTDR
 - D. Loopback plug

11. Which of the following *best* describes a switch port?
 - A. Broadcast domain
 - B. Distance vector
 - C. Link state
 - D. Collision domain

12. Which of the following can a network technician change to help limit war driving?
 - A. Signal strength
 - B. SSID
 - C. Frequency
 - D. Channel

13. Which of the following utilities would a technician use to resolve the URL of a web server to its IP address?
- A. netstat
 - B. route
 - C. nslookup
 - D. arp
14. Which of the following is the usual number of bits for the host identifier part of an IPv6 address?
- A. 16
 - B. 32
 - C. 48
 - D. 64
15. Which of the following layers of the OSI model maps to the Network Access layer of the TCP stack?
- A. Session
 - B. Data Link
 - C. Network
 - D. Transport
16. DNS lookups for a given host are intermittently failing. Which of the following would a technician *most* likely use to verify this problem?
- A. arp
 - B. nslookup
 - C. traceroute
 - D. ipconfig
17. Which of the following technologies prevents network collisions to maximize safe delivery of network data?
- A. CSMA/CA
 - B. DWDM
 - C. RADIUS
 - D. SONET
18. A technician finds that the network card is no longer functioning. At which of the following OSI layers is the problem occurring?
- A. Layer 1
 - B. Layer 3
 - C. Layer 5
 - D. Layer 7

19. Which of the following is used to explain guidelines for users when they are using network resources?
- A. Network cut sheet
 - B. Baselines
 - C. Acceptable use policy
 - D. Regulations
20. Which of the following cable types is employed to protect against interference in the physical environment?
- A. STP
 - B. RG-6
 - C. Fiber
 - D. RG-59
21. Which of the following is *true* of a client/server topology?
- A. Virtual servers are used to stream data to other remote servers
 - B. Servers are used to connect to centralized clients
 - C. Remote clients connect to a centralized server
 - D. Remote clients connect to each other via a virtual server
22. Which of the following protocols are used to view email from a local host off of a remote server?
- A. TFTP
 - B. SNMP
 - C. POP3
 - D. SMTP
23. Which of the following is a common connector used on a coaxial cable?
- A. RJ-45
 - B. DB-25
 - C. BNC
 - D. LC
24. Which of the following commands would be used to identify how many hops a data packet makes before reaching its final destination?
- A. route
 - B. netstat
 - C. traceroute
 - D. ping 127.0.0.1
25. Which of the following differentiates a layer 3 switch from a layer 2 switch?
- A. Routing
 - B. Bridging
 - C. Switching
 - D. Repeating

26. Which of the following defines an IP address that is *not* routed on the Internet?
- A. Multicast
 - B. Public
 - C. Private
 - D. Classful
27. If a technician does *not* assign an IP address to a device, the DHCP server will assign the device a _____:
- A. static IP address.
 - B. reservation.
 - C. dynamic IP address.
 - D. MAC address.
28. A technician has been called about intermittent connectivity near IDF 2. Multiple cables were recently pulled through a common conduit. Which of the following is *most* likely the cause of the problem?
- A. Crosstalk
 - B. Bad connectors
 - C. Wrong DNS
 - D. Duplicate IP address
29. Which of the following cables supports 10Gbps throughput and 100 meters as the maximum distance?
- A. T1 crossover
 - B. Singlemode fiber
 - C. CAT6a
 - D. Coaxial
30. A technician has spent most of the day replacing a server running DHCP. Some of the users have begun to call the Help Desk stating that Internet connection stopped working even after rebooting. Upon investigation, the users' PCs with issues all have IP addresses that start with 169.254.x.x. The technician completes the replacement and powers on the new DHCP server. Which of the following is the *best* way to provide the PCs with a new IP address?
- A. Statically assign a legitimate IP address, and then set the PCs' NICs to DHCP
 - B. Inform each user to replace 169.254 with 192.168
 - C. Wait five minutes until the PC resends a DHCP request
 - D. Run netstat on each PC and then reboot into safe mode
31. Which of the following network topologies is *only* possible between two users?
- A. Star
 - B. Client-server
 - C. Hybrid
 - D. Peer-to-peer

32. Which of the following describes a manually entered route?
- A. Static
 - B. Dynamic
 - C. Multicast
 - D. Unicast
33. Which of the following is the unit used to transfer information at Layer 2 of the OSI model?
- A. Packet
 - B. Socket
 - C. Session
 - D. Frame
34. A MAC address is a part of which of the following OSI model layers?
- A. Network
 - B. Data Link
 - C. Physical
 - D. Transport
35. Which of the following is the reason why a company's network may contain a DHCP server?
- A. To assign IP addresses to devices on the network
 - B. To convert IP addresses to fully qualified domain names
 - C. To provide POP3 and IMAP email functionality
 - D. To allow secure remote access
36. An administrator is able to list the interfaces on a switch after providing the community string "public". Which of the protocols is the administrator *most* likely using?
- A. Telnet
 - B. RADIUS
 - C. SSH
 - D. SNMP
37. The systems administrator has assigned an IP address and default gateway to a standard Layer 2 switch. Which of the following would be the *primary* purpose of doing this?
- A. Allow VLAN routing
 - B. Enable packet filtering on the switch
 - C. Allow remote administration of the switch
 - D. Enable MAC filtering on the switch

38. Which of the following dynamic routing protocols selects routing paths based upon hop count?
- A. BGP
 - B. RIP
 - C. OSPF
 - D. IGRP
39. Which of the following can a technician use when installing a wireless network in a lounge to prevent inappropriate website images?
- A. Content filter
 - B. VPN concentrator
 - C. Load balancer
 - D. Proxy server
40. Which of the following uses types and codes rather than ports?
- A. EIGRP
 - B. ICMP
 - C. UDP
 - D. IPv6
41. Which of the following protocols are used to provide accurate time to network devices?
- A. SMTP
 - B. FTP
 - C. TLS
 - D. NTP
42. Which of the following provides the *strongest* security for a tunneled connection over the Internet?
- A. RDP
 - B. SMTP
 - C. RAS
 - D. IPSec
43. A company has a server with redundant power supplies; which of the following is this an example of?
- A. Traffic shaping
 - B. Caching engines
 - C. Fault tolerance
 - D. Load balancing

44. A network administrator is replacing old switches to support a VoIP deployment. Based on this parameter, which of the following is *most* likely to be implemented on these new switches?
- A. PoE
 - B. STP
 - C. NAT
 - D. VTP
45. Which of the following is a standard fiber cable connector type?
- A. RJ-11
 - B. F-connector
 - C. DB-9
 - D. ST
46. A user would like to connect two laptops and transfer files via the Ethernet ports. Which of the following should *most* likely be provided to the user to accomplish this?
- A. Crossover
 - B. Rollover
 - C. Loopback
 - D. Straight cable
47. Hubs are differentiated from switches in that between the two, only hubs have:
- A. a single collision domain.
 - B. a single broadcast domain.
 - C. multiple collision domains.
 - D. multiple broadcast domains.
48. A network administrator wants to perform a test to see if any systems are passing clear text through the network. Which of the following would be used?
- A. Social engineering
 - B. Packet sniffing
 - C. Rogue access point
 - D. Man-in-the-middle
49. At which layer of the OSI model do MAC addresses operate?
- A. Data Link
 - B. Network
 - C. Application
 - D. Physical
50. SONET is the primary standard for connecting WAN systems that use what cabling?
- A. fiber optic
 - B. STP
 - C. UTP
 - D. Coax