

COMPUTER NETWORK TECHNOLOGY

(300)

REGIONAL – 2017

TOTAL POINTS _____ (500 points)

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 sixty (60) minutes testing time

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Identify the letter of the choice that best completes the statement or answers the question.

1. Which of the following media access methods requires that devices wait until the network is *not* busy before transmitting and detecting collisions while transmitting?

- A. CSMA/CA
- B. token passing
- C. CSMA/CD
- D. TDMA

2. Which of the following networks is *least* likely to use dynamic IP address allocation?

- A. a network of 1800 hosts on 10 LAN segments
- B. a network of eight hosts on a single LAN segment
- C. a network of 239 hosts on a single LAN segment
- D. a network of 4800 hosts on 20 LAN segments

3. You are designing a small network that includes 20 workstations and three servers. You want to connect each of the devices together so that each device can use the most available bandwidth for the least cost. Which of the following network devices should you use?

- A. Switch
- B. Repeater
- C. Hub
- D. Router

4. In which layer of a Campus network hierarchy are ACL's and inter-VLAN routing typically implemented?

- A. core
- B. distribution
- C. access
- D. transport

5. Which of the following statements is *true* regarding switches?

- A. switches segment a network into separate broadcast domains
- B. switches operate at the Network layer of the OSI model
- C. switches forward broadcast and multicast frames
- D. switches rely on the destination address to make forwarding decisions

6. Layer 5, 6 and 7 are called what in the TCP/IP model?

- A. Data
- B. Application
- C. Internetwork
- D. Presentation

7. What layer of the OSI model is where ports are added?

- A. Application
- B. Session
- C. Datalink
- D. Transport

8. What type of fiber cable would be typically used inside buildings?
- A. singlemode
 - B. RG58
 - C. STP
 - D. multimode
9. Which of the following operates primarily at Layer 2 of the OSI model?
- A. switch
 - B. Hub
 - C. Router
 - D. Repeater
10. What type of Ethernet cable would you use if electromagnetic interference is a concern?
- A. UTP
 - B. Cat3
 - C. Cat 5e
 - D. STP
11. What type of topology would be typically used for redundancy?
- A. Star
 - B. Extended Star
 - C. Mesh
 - D. Bus
12. What port is used by HTTPS?
- A. 52
 - B. 443
 - C. 80
 - D. 25
13. At what layer of the OSI model does FTP operate?
- A. Transport
 - B. Network
 - C. Application
 - D. Physical
14. Which of the following IP addresses is a “private “IPv4 address?
- A. 10.1.113.254
 - B. 172.34.13.253
 - C. 221.13.24.65
 - D. 192.167.38.92

15. What type of network scanner detects and actively attempts to prevent malicious network activity?

- A. IPS
- B. EPS
- C. IDS
- D. ELS

16. What is a DNS server's main function?

- A. Give IP addresses to hosts
- B. Block malicious software
- C. Resolve names to IP addresses
- D. Allow local logins

17. If a NIC has a cable plugged in but no activity lights are on, at what layer of the OSI model should you begin troubleshooting?

- A. Datalink
- B. Session
- C. Network
- D. Physical

18. What command would you type at a command prompt to view the ARP cache?

- A. arp - d
- B. arp -v
- C. arp -a
- D. arp -s

19. Given a host IP address of 48.25.24.71/21, what is the last available host address in this network?

- A. 48.25.24.240
- B. 48.25.25.254
- C. 48.25.31.254
- D. 48.25.27.254

20. Which of the following addresses is a multicast address?

- A. 224.0.0.252
- B. 223.0.0.254
- C. 222.0.0.250
- D. 241.0.0.254

21. How many collision domains exist on a fully populated 24 port layer 2 switch?

- A. 24
- B. It depends on whether IP routing is enabled.
- C. 1
- D. It depends on whether or not the switch is connected to a server.

22. Host A wants to use a web browser to display a web page that resides on Host B. All of the devices reside in the same subnet. Which of the following protocols would *not* be involved in this process?

- A. UDP
- B. RARP
- C. HTTP
- D. ARP

23. What type of network scanner detects and sends out alerts about malicious network activity?

- A. IDS
- B. EPS
- C. IPS
- D. ELS

24. What process is used when a host has an IP address but does *not* have the MAC address?

- A. RARP
- B. ARP
- C. POP
- D. DHCP

25. Which protocol uses port 23?

- A. FTP
- B. POP
- C. Telnet
- D. DNS

26. What class of address is 172.40.10.11?

- A. C
- B. B
- C. D
- D. A

27. How many bits are in an IPv6 address?

- A. 128
- B. 32
- C. 64
- D. 256

28. What protocol helps prevent switching loops?

- A. STP
- B. TCP
- C. UDP
- D. PXE

29. What command line command displays the IP configuration?
- A. Nbtstat
 - B. IPview
 - C. Ipconfig
 - D. Nslookup
30. What command line command does a DNS server query?
- A. Arp -a
 - B. Dnsquery
 - C. Nslookup
 - D. IPconfig
31. What cable connects like devices? (EX. Switch to Switch)
- A. Straight through
 - B. Null Modem
 - C. RG6
 - D. Crossover
32. How many bits is a MAC address?
- A. 48
 - B. 32
 - C. 64
 - D. 128
33. What technology do wireless devices use to deal with collisions?
- A. CSMA/CD
 - B. X-on/X-off
 - C. CDSM/CA
 - D. CSMA/CA
34. What process is used by IPv4 so that only one public address needs to be used to connect many IP addresses to the Internet?
- A. NAC
 - B. DMZ
 - C. NAT
 - D. BGP
35. What prevents indefinite loops in a properly configured network?
- A. Hop Count
 - B. VTP
 - C. TTL
 - D. TCP Handshake

36. An access point that appears legitimate but is being used to steal information is known as what?
- A. War driving
 - B. Phishing device
 - C. Evil Twin
 - D. Rogue AP
37. What port is used by SMTP?
- A. 25
 - B. 80
 - C. 110
 - D. 52
38. What software tool can you use to save a packet to examine at a later time?
- A. Port Scanner
 - B. Protocol Analyzer
 - C. Packet Analyzer
 - D. TCP/IP Scanner
38. A subnet setup outside of a firewall that has little protection is known as what?
- A. VLAN
 - B. DMZ
 - C. VPN
 - D. Unprotected Zone
39. Which type of server automatically gives IP addresses when requested?
- A. DNS
 - B. WINS
 - C. Domain Controller
 - D. DHCP
40. What tool is typically used to find a fiber optic line break?
- A. Toner and probe
 - B. Optic Probe
 - C. Punch down tool
 - D. OTDR
41. A user in a company is having network issues. Upon looking at the IP address, it showed the address of 169.254.102.32. What does this indicate?
- A. Domain server isn't responding
 - B. NIC card might be faulty
 - C. APIPA was used
 - D. This is not a problem, need to troubleshoot further

42. What command line command would you use to see all TCP/IP connections that are currently active?

- A. Nbtstat
- B. ICMP
- C. Netstat
- D. Ipconfig/all

43. Which of the following addresses would be considered as a loopback address?

- A. ::0
- B. ::127:0:0:1
- C. 00-21-86-5C-B3-54
- D. 127.0.0.1

44. A network administrator needs to create as many subnets as possible using a Class C address and having at least 26 useable hosts per subnet. What should the subnet mask be?

- A. 255.255.255.128
- B. 255.255.255.224
- C. 255.255.255.232
- D. 255.255.255.240

45. If a network technician wants to ping a destination host a specific number of times, what switch will be used with the ping command?

- A. -a
- B. -t
- C. -l
- D. -n

46. At what layer of the OSI model does a bridge operate?

- A. Physical
- B. Layer 2
- C. Layer 4
- D. Network

47. What is the maximum hop count for RIP v2?

- A. 10
- B. 255
- C. 15
- D. 30

48. What routing protocol is a path vector protocol?

- A. RIP
- B. IsIs
- C. BGP
- D. OSPF

49. What is the correct sequence for a DHCP request in a network?

- A. Offer, Discover, Request, Acknowledge
- B. Request, Discover, Offer, Acknowledge
- C. Discover, Acknowledge, Request, Offer
- D. Discover, Offer, Request, Acknowledge

50. What wireless technology uses 5GHz frequency and is *not* compatible with other wireless technologies?

- A. 802.11b
- B. 802.11g
- C. 802.11ac
- D. 802.11a