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| Question No :   TOTSOL-DCN-01 | Subject : Digital Electronics | Full Marks : 100 | Time : 1. 5 hrs. |

Answer all questions. Each question carries 2 marks. 0.5 marks will be deducted as -ve mark per wrong answer. Use ORS.

1. **Your company uses both Ethernet and token-ring's LAN's in the same building. Users need access to resources & the ability to transmit data between the LAN's.**
    Which device would use to enable communications between dissimilar LAN's that use different protocols?
    A> Gateway   D> Repeater
    B> Router   E> None of the above
    C> Bridge

2. **What does the MAC driver do?**
    A> It defines how data should be presented to the next receiving layer, packages the data accordingly, and then passes the data to the application through the session layer interface.
    B> It provides low - level access to network adapters by providing data transmission support and some basic adapter management functions also to avoid network message collision.
    C> It supports communications between applications on different computers by creating sessions, defining data-exchange formats, and providing application - support services.
    D> It is responsible for establishing logical names on the network, establishing connections between two logical names on the network, and supporting reliable data transfer between computers that have established a session.
    E> None of the above

3. **Which layers of the OSI model are managed by a network protocol such as Microsoft NetBEUI ?**
    A> Network & transport
    B> Physical & Data link
    C> Transport & session
    D> Media access control and logical link control.
    E> None of the above

4. **What is the purpose of the token in a network that employs a media access control method based on the IEEE 802.5 specification ?**
    A> Token passing provides higher throughput than CSMA/CD when twisted-pair wiring is used.
    B> The station that holds the token is allowed to transmit a message on the network.
    C> The station that hold the token has the highest priority on the network.
    D> A token contains information that is used to route message
    E> None of the above

5. **In your company, 2 Ethernet Networks are connected with a router. All network connections run TCP/IP. Your new client computer can access only the computers on your side of the router. All other computers are able to access each other.**
    What is the most likely cause of the problem?
    A> Incorrect termination of the destination network.
    B> Defective network adapter in the router.
    C> Incorrect subnet mask on your client computer.
    D> Malfunctioning repeater.
    E> None of the above

6. **What does the transport protocol do ?**
   A> It defines how data should be presented to the next receiving layer, packages the data accordingly, and then passes the data to the application through the session layer interface.
   B> It provides low-level access to the network adapters by providing data transmission support and some basic adapter management functions.
   C> It supports communications between applications on different computers by creating sessions, defining data-exchange formats, and providing application-support services.
   D> It is responsible for establishing logical names
   E> None of the above

7. **Your Company has networks in 2 cities. Both networks use NetBEUI. A technician connects the 2 networks by using routers and a 56-Kbps line. The networks are NOT able to communicate with each other.**
   What is the causes of the problem?
   A> NetBEUI does NOT work over long distances.
   B> NetBEUI is not routable.
   C> NetBEUI can't be use to join 2 computers.
   D> Routers can't be used to join 2 computers.
   E> None of the above

8. **You are designing a network that will consist of 3 Windows NT Servers and 2 Novell Netware Servers , and 150 Workstations running Windows 95.You want to use only 1 network protocol. Which protocol should you use?**
   A> DLC   D> IPX/SPX
   B> NetBEUI   E> None of the above
   C> XNS

9. **Why does a high number of broadcast messages adversely affect overall network performances?**
   A> Each broadcast message requires an acknowledgement packet from every computer on the network.
   B> No computer on the network can transmit data until each broadcast message has been acknowledged by every computer on the network.
   C> Broadcast messages are automatically routed to every segment of a LAN.
   D> Every computer on the network must process each broadcast message.
   E> None of the above

10. **You are adding a new server to your network. The network uses TCP/IP. The new server will provide users with dial-up access to network resources. The data link communications protocol you choose for dial-up access must allow you to provide secure authentication.**
    Which protocol should be choose?
    A> PPP   C> All of the above
    B> DLC   D> None of the above

11. **From your client computer, you are able to access several servers on your 10Base2 Ethernet network. However, you are not able to access a server names RED. Other client computers are able to access RED.**
    What is the most likely cause of the problem?
    A> There is an incorrect IRQ setting on the network adapter in your client computer.
    B> There is a break in the cable.
    C> There is a protocol mismatch between your client computer and RED.

D> An excess number of collisions are occurring on the media.

E> None of the above

12. Your network has 3 servers that run MS Windows NT Server and 1 server that runs NetWare. You want users of your client computers to be able to access resources on all servers. You do not want to add any s/w to the client computers.

Which devices should you use?

A> Bridge   D> Gateway

B> Router   E> None of the above

C> Router

13. Your 10Base2 Ethernet cable is 185 meters long. You are planning to extended your network by adding another 100 meters of cable. The total length of the cable will be 285 meters. The network use NetBEUI.

Which device should you use?

A> Repeater   D> Gateway

B> T connector   E> None of the above

C> Router

14. In building cabling, horizontal wiring from the Tele-communications closet (TC) to the wall outlet has a distance limitation of

A> 4 meters   D> 300 meters

B> 6 meters   E> None of the above

C> 90 meters

15. In UTP Cat 5 wiring, patch cables from the wall outlet to the PC have a distance limitation of

A> 1 meter   D> 9 meters

B> 3 meters   E> None of the above

C> 6 meters

16. The rating in bits per second for UTP Cat 5 wiring is

A> 100 Mbps   D> 2 Mbps

B> 10 Mbps   E> None of the above

C> 4 Mbps

17. T connectors & Terminators are used in which of the following cable systems

A> FDDI   D> 10Base T

B> Token Ring   E> None of the above

C> Thin Ethernet

18. Fiber Optic cable is often used to

A> Replace UTP because it is cheaper   D> Link remote sites using a WAN

B> Overcome distance limitations   connection

C> Connect PC's to wall outlets   E> None of the above

19. You need to install network adapters in 20 ISA-bus computers. Which rule must you follow when installing the network adapters ?

A> All adapters in a computer, including the network adapter, must be set to the same IRQ.

B> All adapters in a computer, including the network adapter, must be set to the different IRQ.

C> All network adapters in all computers on the same network must be set to the same IRQ.

D> All network adapters in all computers on the same network must be set to the different IRQ.

E> None of the above

20. You are installing a network interface card on a computer with the following configuration: a 586/133 CPU, 16 MB of Ram, a 800-MB IDE hard disk, a parallel port configured as LPT1, & a serial port configured as COM1, which is currently used by a mouse. In addition to the IDE host adapter & the video card, The following devices have been installed on the computer's expansion bus: a modem on COM2, a SCSI host adapter for a CD-ROM drive, & a sound card. The SCSI host adapter is using IRQ 5, and the second card is using IRQ 11. The network interface card that you are installing supports the following choices for IRQ: 2, 3, 4, 5, 9, 10 & 11.
Which IRQ(s) could you use for the network interface card without creating an IRQ conflict with another device.

A> 2   D> 10

B> 4   E> None of the above

C> 5

21. What is the minimum category of UTP cable required to meet Ethernet 10Base T standards?

A> Category 1   D> Category 5

B> Category 2   E> None of the above

C> Category 3

22. You have been given the task of installing cables for an Ethernet network in your office. The building is an older one, & you have limited workspace. In addition, the network cable will have to share the existing conduit with telephone cable, & cable segments will be up to 135 meters in length.
Which cable is best suited to this installation?

A> Fiber optic   D> Thicknet Coaxial

B> Category 1 UTP   E> None of the above

C> Category 3 UTP

23. Your company has offices in two separate buildings, & you are in charge of connecting LAN's between the buildings. The distance between the buildings is approximately 450 meters. Your current network backbone operates at 10Mbps. You could use Thicknet 10Base5 cable.
What is one reason to consider using fiber optic cable instead?

A> Because of its light weight & flexibility, fiber optic cable is less expensive to install than the heavy & inflexible RG-11 coaxial cable used by 10Base5.

B> Fiber optic cable supports higher digital transmission rates, providing additional capacity 4 future network expansion without the need to run new cable.

C> Using fiber optic cable eliminates the router that would typically be used to link the LAN's between the two buildings.

D> Fiber optic cable is better suited to broadband transmission, providing a relatively inexpensive way to increase network capacity in the future.

E> None of the above

24. You are setting up a network in a school. You need to network 5 computers for the file & printer sharing. You want to use some donated cable & Ethernet adapters. You identify the donated adapters as ARC net coaxial network adapters & 10Base2 Ethernet network adapters. You install an Ethernet adapter in each of the 5 computers & connect the donated cable.

The computers are not able to maintain reliable communication. You suspect that you are NOT using correct type of coaxial cable.
Which type of coaxial cable should you be using ?

A> RG – 58 AU   D> RJ - 45
B> RG – 59 AU   E> None of the above
C> RJ - 11

25. You want to connect 2 networks that are both 10Base T Ethernet networks. The 2 networks are located in separate buildings so that they are approximately 1,000 meters apart.
Which media should you use?

A> Type 1 STP cable   D> Wireless infrared
B> RG – 58 A/U Coaxial Cable   E> None of the above
C> Fiber – optic cable

26. Windows 95 uses which line protocols in Dial – up Network

A> SLIP   D> TCP/IP
B> PPP   E> None of the above
C> NET BEUI

27. Which file represents a back – up copy of the system portion of the windows 95 Registry ?

A> USER.DAT   C> USER.DAO   E> REGEDT 32
B> SYSTEM.DAT   D> SYSTEM.DAO

28. What windows 95 tool enables you to monitor network shares on your Windows 95 network ?

A> NETMON   D> All of the above
B> NET WATCHER   E> None of the above
C> SYSMON

29. Since bridges buffer frames, it is possible to interconnect different network segments which use different MAC protocols

A> True   B> False

30. Bridges introduce small delays into a network

A> True   B> False

31. Bridges are ideally used in environments where there a number of well defined workgroups

A> True   B> False

32. Bridges offer performance improvements when used in diverse or scattered workgroups, where the majority of access occurs outside of the local segment.

A> True   B> False

33. Bridges operate at the MAC layer (layer 2 of the OSI model).

A> True   B> False

34. Routers filter out unnecessary network traffic & remove it from network segments.

A> True   B> False

35. Most router can also act as bridges.

A> True   B> False

36. Routers are often used to implement FIREWALLS.
    A> True   B> False

37. Workstations connected to a port on a modern 10base-T Ethernet HUB all use the same bandwidth, i.e. the bandwidth is shared across all available ports, the less ports, the less bandwidth available per port.
    A> True   B> False

38. A modern 10Base-T Ethernet hub counts as a repeater.
    A> True   B> False

39. Hubs connect workstations using a physical bus topology.
    A> True   B> False

40. An advantage of a HUB is that it can be cascaded to add additional ports.
    A> True   B> False

41. Another drawback with repeaters is that the traffic generated on one segment is propagated onto the other segments.
    A> True   B> False

42. An Ethernet switch works at the protocol layer.
    A> True   B> False

43. A cut through switch reads the entire packet before forwarding it to the destination segment
    A> True   B> False

44. With a cell – back plane architecture, the data rate on the back plane is significantly greater than the aggregate data rate of the ports.
    A> True   B> False

45. In heavily overloaded networks, cross-bar switching offers better performance than cell-back plane switching.
    A> True   B> False

46. Store-Forward switches detect more errors than the cut-through variety
    A> True   B> False

47. Each network segment must have a unique address.
    A> True   B> False

48. A route is a path between two network segments.
    A> True   B> False

49. Distance limitations can be extended with the use of repeaters
    A> True   B> False

50. One drawback with using repeaters is that you can't isolate faulty network segments
    A> True   B> False

Answer Sheet for question no. TOTSOL-DCN-01

1. C	8. D	15. B	22. C	29. T	36. T	43. F	50. F
2. B	9. D	16. A	23. B	30. T	37. F	44. T	
3. A	10. A	17. C	24. A	31. T	38. F	45. F	
4. B	11. C	18. B	25. C	32. F	39. F	46. T	
5. C	12. D	19. B	26. A,B	33. T	40. T	47. T	
6. A	13. A	20. D	27. D	34. T	41. T	48. T	
7. B	14. C	21. C	28. B	35. T	42. F	49. T	