Sample Questions

Department of Information Technology

**Subject Name:** Computer Network and Network Design **Course Code:** ITC402

**Semester: IV**

Multiple Choice Questions

| | **Choose the correct option for following questions. All the Questions carry equal marks** |
|---|---|
| 1. | RPC stands for |
| Option A: | Rear Procedure Call |
| Option B: | Remote Parser Call |
| Option C: | Remote Passing Call |
| Option D: | Remote Procedure Call |
| | |
| 2. | IPv6 allows _____ security provisions than IPv4. |
| Option A: | More |
| Option B: | Less |
| Option C: | Same |
| Option D: | None of the above |
| | |
| 3. | The IPv4 header field formerly known as the service type field is now called the _____ field. |
| Option A: | IETF |
| Option B: | Differentiated Services |
| Option C: | Checksum |
| Option D: | Type of Service |
| | |
| 4. | BGP protocol uses which of the following algorithm, |
| Option A: | Distance Vector |
| Option B: | Path Vector |
| Option C: | Link-State Routing |
| Option D: | IGMP |
| | |
| 5. | TCP/IP model was developed _____ the OSI model. |
| Option A: | Prior to |
| Option B: | After |
| Option C: | No reference |
| Option D: | Simultaneous to |
| | |
| 6. | Which layer provides the services to user? |
| Option A: | Application layer |
| Option B: | Physical layer |

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| Option C: | Transport Layer |
| Option D: | Network Layer |
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| Option A: | 11001001000 |
| Option B: | 11001001011 |
| Option C: | 11001010 |
| Option D: | 110010010011 |
| | |
| 8. | In polling method, in the poll function, when response is positive then the primary station reads the data and returns an |
| Option A: | waiting frame |
| Option B: | Sending frame |
| Option C: | Receiving frame |
| Option D: | Acknowledgment frame |
| | |
| 9. | Which medium / cable consists of inner copper core and a second conducting outer sheath |
| Option A: | Fiber optic |
| Option B: | Unshielded Twisted pair |
| Option C: | Coaxial cable |
| Option D: | Shielded Twisted pair |
| | |
| 10. | If the resultant value of checksum is 0, what does it indicate? |
| Option A: | Message accepted |
| Option B: | Message rejected |
| Option C: | Message resent |
| Option D: | Message send back |
| 11. | In the slow start phase of the TCP congestion control algorithm, the size of the congestion window |
| Option A: | Does not increase |
| Option B: | Increases linearly |
| Option C: | Increases quadratically |
| Option D: | Increases exponentially |
| | |
| 12. | The ports ranging from 0 to 1,023 are called the _____ ports. The ports ranging from 1,024 to 49,151 are called _____ ports. The ports ranging from 49,152 to 65,535 are called the _____ ports. |
| Option A: | well-known; registered; dynamic or private |
| Option B: | registered; dynamic or private; well-known |
| Option C: | private or dynamic; well-known; registered |
| Option D: | private or dynamic; registered; well-known |
| | |
| 13. | TCP is a _____ protocol. |
| Option A: | bit-oriented |

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| Option B: | message-oriented |
| Option C: | block-oriented |
| Option D: | byte-oriented |
| | |
| 14. | In TCP, the window should not be _____. |
| Option A: | opened |
| Option B: | closed |
| Option C: | shrunk |
| Option D: | slide |
| | |
| 15. | The first section of a URL identifier is the _____. |
| Option A: | protocol |
| Option B: | path |
| Option C: | host |
| 16. | Which of the following compression method is not lossless? |
| Option A: | run-length coding |
| Option B: | dictionary coding |
| Option C: | arithmetic coding |
| Option D: | predictive coding |
| | |
| 17. | In FTP, there are three types of _____: stream, block, and compressed. |
| Option A: | file types |
| Option B: | data types |
| Option C: | Data structures |
| Option D: | transmission modes |
| | |
| 18. | Which layer 1 device can be used to enlarge the area covered by a single LAN segment?<br>. Switch<br>i. NIC<br>i. Hub<br>i. Repeater |
| Option A: | Switch Only |
| Option B: | Switch and NIC |
| Option C: | Switch and Hub |
| Option D: | Switch and Repeater |
| | |
| 19. | In a block, the prefix length is /15; what is the mask? |
| Option A: | 255.254.0.0 |
| Option B: | 255.255.255.0 |
| Option C: | 255.255.255.128 |
| Option D: | 255.255.254.128 |
| | |
| 20. | An organization is granted a block of classless addresses with the starting address 199.34.76.128/29. How many addresses are granted? |
| Option A: | 4 |

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| Option B: | 8 |
| Option C: | 16 |
| Option D: | 32 |
| | |
| 21 | OSI stands for |
| Option A: | Open system interconnection |
| Option B: | Operating system interface |
| Option C: | Optical service implementation |
| Option D: | Open service internet |
| | |
| 22. | Which topology is most fastest topology? |
| Option A: | Star |
| Option B: | Hybrid |
| Option C: | Mesh |
| Option D: | Bus |
| | |
| 23. | Which medium has the highest transmission speed? |
| Option A: | Coaxial Cable |
| Option B: | Optical fiber cable |
| Option C: | Twisted pair cable |
| Option D: | Electrical cable |
| | |
| 24. | A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 011111000100, then the input bit-string is |
| Option A: | Output = 01111100100 |
| Option B: | Output = 011111100100 |
| Option C: | Output = 011111001100 |
| Option D: | Output = 0111111111 |
| | |
| 25. | In CSMA/CD, the frame transmission time (Tt) should be _____ the propogation time(Tp) |
| Option A: | Tt > Tp |
| Option B: | Tt>=2Tp |
| Option C: | Tt>2Tp |
| Option D: | Tt > 1/Tp |
| | |
| 26. | What is the total vulnerable time value of pure Aloha? |
| Option A: | 1/2 Tfr |
| Option B: | Tfr |
| Option C: | 2*Tfr |
| Option D: | 4*Tfr |
| | |
| 27. | A subset of a network that includes all the routers but contains no loops is called _____ |
| Option A: | spanning tree |
| Option B: | cost tree |
| Option C: | path tree |

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| Option D: | special tree |
| | |
| 28. | In IPv6, the _____ field in the base header restricts the lifetime of a datagram. |
| Option A: | version |
| Option B: | next-header |
| Option C: | hop limit |
| Option D: | neighbour-advertisement |
| | |
| 29. | The term _____ means that IP provides no error checking or tracking. IP assumes the unreliability of the underlying layers and does its best to get a transmission through to its destination, but with no guarantees. |
| Option A: | Reliable delivery |
| Option B: | Connection oriented delivery |
| Option C: | Best effort delivery |
| Option D: | Worst delivery |
| | |
| 30. | OSPF protocol uses which algorithm? |
| Option A: | Distance Vector |
| Option B: | Path Vector |
| Option C: | Link State Routing |
| Option D: | RIP |
| | |
| 31. | Which of the following transport layer protocols is used to support electronic mail? |
| Option A: | SMTP |
| Option B: | IP |
| Option C: | TCP |
| Option D: | UDP |
| | |
| 32. | In TCP, one end can stop sending data while still receiving data. This is called a _____ termination. |
| Option A: | half-close |
| Option B: | half-open |
| Option C: | full-close |
| Option D: | Full open |
| | |
| 33. | Which of the following functionalities must be implemented by a transport protocol over and above the network protocol? |
| Option A: | Recovery from packet losses |
| Option B: | Detection of duplicate packets |
| Option C: | Packet delivery in the correct order |
| Option D: | End to end connectivity |
| | |
| 34. | In TCP, if the ACK value is 200, then byte _____ has been received successfully. |
| Option A: | 199 |

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| Option B: | 200 |
| Option C: | 201 |
| Option D: | 202 |
| | |
| 35. | The second phase of JPEG compression process is _____. |
| Option A: | DCT transformation |
| Option B: | Quantization |
| Option C: | lossless compression encoding |
| Option D: | None of the choices are correct. |
| | |
| 36. | During an FTP session the data connection may be opened _____. |
| Option A: | only once |
| Option B: | only two times |
| Option C: | Five times |
| Option D: | as many times as needed |
| | |
| 37. | The protocol data unit (PDU) for the application layer in the Internet stack is ____. |
| Option A: | segment. |
| Option B: | datagram. |
| Option C: | message. |
| Option D: | frame. |
| | |
| 38. | A table of a router normally contains addresses belonging to _____ protocol. |
| Option A: | a single |
| Option B: | Two |
| Option C: | Three |
| Option D: | multiple |
| | |
| 39. | The first address assigned to an organization in classless addressing _____. |
| Option A: | must be a power of 2 |
| Option B: | must be a power of 4 |
| Option C: | must belong to one of the A, B, or C classes |
| Option D: | must be evenly divisible by the number of addresses |
| | |
| 40. | An organization is granted a block of classless addresses with the starting address 199.34.32.0/27. How many addresses are granted? |
| Option A: | 4 |
| Option B: | 8 |
| Option C: | 16 |
| Option D: | 32 |
| | |
| 41. | Which of the following layers is an addition to OSI model when compared with TCP IP model? |
| Option A: | Application layer |
| Option B: | Presentation layer |
| Option C: | Session layer |

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| Option D: | Session and Presentation layer |
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| 42. | How many layers are present in the Internet protocol stack (TCP/IP model)? |
| Option A: | 5 |
| Option B: | 7 |
| Option C: | 6 |
| Option D: | 10 |
| | |
| 43. | The Media Access Control sublayer deals with which of the following function? |
| Option A: | Error Control |
| Option B: | Framing |
| Option C: | Access Control |
| Option D: | Flow Control |
| | |
| 44. | In which method, a station that wishes to send a frame over a shared channel will sense the channel. If the channel is idle it sends immediately. If the channel is not idle, it waits a random amount of time and then senses the line again. |
| Option A: | Non- persistent |
| Option B: | 1-persistent |
| Option C: | p-persistent |
| Option D: | r-persistent |
| | |
| 45. | If the code value in the control field of a S-Frame in HDLC is "10", which type of frame does this code indicate |
| Option A: | Receive Ready |
| Option B: | Receive Not Ready |
| Option C: | Selective-Reject |
| Option D: | Reject |
| | |
| 46. | What does the physical layer define? |
| Option A: | Data Rate |
| Option B: | Logical addressing |
| Option C: | Compression algorithm |
| Option D: | Encryption method |
| | |
| 47. | Which one of the following is not a function of network layer? |
| Option A: | Routing |
| Option B: | inter-networking |
| Option C: | congestion control |
| Option D: | error control |
| | |
| 48. | Which one of the following algorithm is not used for congestion control? |
| Option A: | Nagle Algorithm |
| Option B: | load shedding |
| Option C: | Choke packet |

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| Option D: | routing information protocol |
| | |
| 49. | The main function of ICMP is |
| Option A: | Error and diagnostic functions |
| Option B: | Routing |
| Option C: | Forwarding |
| Option D: | Addressing |
| | |
| 50. | Which field restricts the lifetime of a datagram in IPv6 header |
| Option A: | Version |
| Option B: | Next-header |
| Option C: | Hop-limit |
| Option D: | Neighbor advertisement |
| | |
| 51. | TCP groups a number of bytes together into a packet called a _____. |
| Option A: | user datagram |
| Option B: | segment |
| Option C: | datagram |
| Option D: | message |
| | |
| 52. | The inclusion of the checksum in the TCP segment is _____. |
| Option A: | optional |
| Option B: | mandatory |
| Option C: | depends on the type of data |
| Option D: | Depends on the type of application program |
| | |
| 53. | The source port number on the UDP user datagram header defines _____. |
| Option A: | the sending computer |
| Option B: | the receiving computer |
| Option C: | the process running on the sending computer |
| Option D: | the process running on the receiving computer |
| | |
| 54. | In TCP, a SYN segment consumes _____ sequence number(s). |
| Option A: | no |
| Option B: | one |
| Option C: | two |
| Option D: | three |
| | |
| 55. | Lempel Ziv Welch (LZW) method is an example of _____. |
| Option A: | run-length coding |
| Option B: | dictionary coding |
| Option C: | arithmetic coding |
| Option D: | predictive coding |
| | |
| 56. | In the DNS, the names are defined in _____ structure. |
| Option A: | a linear list |
| Option B: | an inverted-tree |
| Option C: | a three-dimensional |

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| Option D: | a nonlinear list |
| | |
| 57. | FTP uses the services of _____. |
| Option A: | UDP |
| Option B: | TCP |
| Option C: | IP |
| Option D: | ICMP |
| | |
| 58. | What is the first address of a block of classless addresses if one of the addresses is 12.2.2.76/10? |
| Option A: | 12.0.0.0 |
| Option B: | 12.2.0.0 |
| Option C: | 12.2.2.2 |
| Option D: | 12.2.2.8 |
| | |
| 59. | The topology that requires multipoint connection is _____. |
| Option A: | Star |
| Option B: | Mesh |
| Option C: | Ring |
| Option D: | bus |
| | |
| 60. | In fixed-length subnetting, the number of subnets must _____. |
| Option A: | be a power of 2 |
| Option B: | be a multiple of 128 |
| Option C: | be divisible by 128 |
| Option D: | be a multiple of 256 |

Descriptive Questions

| **10 marks each** |
|---|
| 1. Explain HDLC protocol in detail |
| 2. Compare Bus and Star topology |
| 3. Explain IP v4 Header with a neat labelled diagram |
| 4. Write note on TCP timers. |
| 5. Explain SNMP protocol. |
| 6. An organization is granted the block of 16.0.0.0/8. The administrator wants to create 500 fixed length subnets. Find (a) subnet mask (b) number of addresses in each subnet (c) first and last addresses in subnet 1. |
| 7. Explain the OSI Model in brief with suitable figure |
| 8. What is a sliding window? Explain Go back N protocol in detail |
| 9. What do you mean by switching? What are the types of switching techniques |
| 10. What is congestion and what are causes of congestion? |
| 11. Compare TCP and UDP. |

12. Consider five source symbols of a discrete memory less source. Their probabilities are given below. Find the Huffman code for eace symbol.

| Symbol | M1 | M2 | M3 | M4 |
|---|---|---|---|---|
| probability | 0.4 | 0.3 | 0.2 | 0.1 |

13. Explain ALOHA and Slotted ALOHA.

14. Compare LAN, WAN, MAN

15. Explain IP v4 Header format

16. Compare connectionless and connection-oriented services.

17. What is Domain Name System? How does it work?

18. An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets: one subblock of 10 addresses, one subblock of 60 addresses and one subblock of 120 addresses. Design the subblocks.

Compare connectionless and connection-oriented services.