## MCQ type Questions

| Sr. No | Question | Option A | Option B | Option C | Option D | Answer |
|--------|----------|----------|----------|----------|----------|--------|
| 1 | How many bits internet address is assigned to each host on a TCP/IP internet which is used in all communications with the host ? | 16 bits | 32 bits | 48 bits | 64 bits | b |
| 2 | The main function of transport layer is | Node-to-node delivery | Process-to-process delivery | Synchronization | Updating and maintenance of routing tables | b |
| 3 | The Media Access Control Sublayer resides in which OSI layer? | Transport | Network | Physical | Data Link | d |
| 4 | Which of the following layers of the OSI reference model is concerned with the syntax of data exchanged between application entities? | Presentation layer | Application layer | Transportation layer | Session layer | a |
| 5 | Encryption and decryption are functions of | Transport layer | Session layer | Presentation layer | None of the above | c |

| 6 | Data which is routed between networks or from node to node within networks requires only the functions of OSI | Layers 1 and 2 | Layers 1 through 3 | All layers | None of the above | b |
|---|---|---|---|---|---|---|
| 7 | With which of the following characteristics, the design issue of a physical layer does not deal | Mechanical | Electrical | Functional | None of the above | a |
| 8 | In OSI model, which of the following layer provides error-free delivery of data | Network layer | Transport layer | Session layer | Data link layer | b |
| 9 | Two Networks and Transport-layer protocols commonly used on Internet are | TCP and SPX | TCP and IP | RIP and NLSP | None of the above | b |
| 10 | Usually traffic in a network is measured by | blocking probabilities | grade of service | relative congestion | erlangs | c |
| 11 | The layer responsible for end to end delivery of the entire message is | Network layer | Transport layer | Session layer | Data link layer | b |
| Unit 2 | | | | | | |
| 11 | ARQ stands for | Automatic repeat quantization | Automatic repeat request | Automatic retransmission request | Acknowledge repeat request | b |
| 12 | CRC stands for _____ | cyclic redundancy check | code repeat check | code redundancy check | cyclic repeat check | a |

| 13 | Which error detection method involves polynomials? | CRC | Simple parity check | Two dimensional parity check | Checksum | a |
|----|-----|-----|-----|-----|-----|-----|
| 14 | Automatic repeat request error management mechanism is provided by _ | logical link control sublayer | media access control sublayer | network interface control sublayer | application access control sublayer | a |
| 15 | In cyclic redundancy checking, what forms the check bits? | Remainder | Divisor | Quotient | Dividend | a |
| 16 | Header of a frame generally contains _____ | synchroniza tion bytes | addresses | frame identifier | all of the mentioned | d |
| Unit 3 | | | | | | |
| 17 | In --------- methods, no station is superior to another station and none is assigned the control over another | random access | controlled access | channelization | none of the above | a |
| 18 | In_____, each station is allocated a band to send its data. In other words, each band is reserved for a specific station, and it belongs to the station all the time | FDMA | TDMA | CDMA | none of the above | a |
| 19 | In the_____method, a special packet called a ____ circulates through the ring | reservation: control frame | polling: poll request | token passing: token | none of the above | c |
| 20 | The maximum throughput for pure ALOHA is____per cent. | 12.2 | 18.4 | 36.8 | none of the above | b |
| 21 | In the_____method, a station that has a frame to send senses the line. If the line is idle, it sends immediately. If the line is not idle, it waits a | nonpersistent | 1-persistent | p-persistent | none of the above | a |

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| | random amount of time and then senses the line . again | | | | | |
| 22 | The vulnerable time for CSMA is the_____propagation time | the same as | two times | three times | none of the above | a |
| 23 | In_____, each station is forced to send only at the beginning of the time slot | pure ALOHA | slotted ALOHA | both (a) and (b) | neither (a) nor (b) | b |
| Unit 4 | | | | | | |
| 24 | In congestion control, policies are applied to prevent congestion before it happens | open loop | closed loop | Either (a) and (b) | Neither (a) and (b) | a |
| 25 | In_____, each node maintains a vector (table) of minimum distances to every node | path vector | distance vector | link state | none of the above | b |
| 26 | A...............routing table is updated periodically using one of the dynamic routing protocols | static | dynamic | hierarchical | non static | b |
| 27 | Which one is not a contiguous mask? | 255.255.255.254 | 255.255.224.0 | 255.148.0.0 | all are | c |
| 28 | What is the first address of a block of classless addresses if one of the addresses is 12.2.2.127/28? | 12.2.2.0 | 12.2.2.96 | 12.2.2.112 | none of the above | c |
| 29 | What is the default mask for class B in CIDR notation? | /9 | /8 | /16 | none of the above | c |
| 30 | The number of addresses in a class C block is__ | 65,534 | 16,777,216 | 256 | none of the above | c |
| 31 | The number of addresses in a class | 65,534 | 16,777,216 | 256 | none of the above | b |

| | | | | | | |
|---|---|---|---|---|---|---|
| | A block is_____ | | | | | |
| 32 | The first address assigned to an organization in classless addressing _____. | must be a power of 4 | must be evenly divisible by the number of addresses | must belong to one of the A, B, or C classes | none of the above | b |
| 33 | In classless addressing, the prefix length defines the_____ | A. netid | B. hostid | C. mask | none of the above | c |
| 34 | In classless addressing, the_____is another name for the common part of the address range | A. suffix | B. prefix | C. netid | none of the above | b |
| 35 | In a block, the mask is 255.255.192.0; what is the prefix length? | /20 | /28 | /18 | none of the above | c |
| 36 | Find the number of addresses in a block of classless addresses if one of the addresses is 12.2.2.7/24. | 32 | 64 | 256 | none of the above | c |
| 37 | In distance vector routing, each node periodically shares its routing table with____and whenever there is a change. | every other node | its immediate neighbors | one neighbor | none of the above | b |
| 38 | In_____delivery, the deliverer of the IP packet and the destination are on different networks | a connection-oriented | a direct | an indirect | none of the above | c |
| 39 | A ……… routing table contains information entered manually | static | dynamic | hierarchical | non static | a |
| 40 | What is the result of ANDing 255 and 15? | 255 | 15 | 0 | none of the above | b |
| 41 | What is the default mask for class C in CIDR notation? | /24 | /8 | /16 | none of the above | a |

| | | | | | | |
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| 42 | What is the default mask for class A in CIDR notation? | /9 | /8 | /16 | none of the above | b |
| 43 | The number of addresses in a class B block is_____ | 65,536 | 16,777,216 | 256 | none of the above | a |
| 44 | The number of addresses assigned to an organization in classless addressing__. | can be any number | must be a multiple of 256 | must be a power of 2 | none of the above | C |
| 45 | In IPv4, class_____has the greatest number of addresses in each block. | A | B | C | D | a |
| 46 | In classless addressing, the_____ | A. suffix | B. prefix | C. hostid | none of the above | a |
| 47 | In a block, the prefix length is /24; what is the mask? | 255.255.255.0 | 255.255.242.0 | 255.255.0.0 | none of the above | a |
| 48 | Identify the class of the following IPv4 address: 191.1.2.3 | A | B | C | None of the above | b |
| 49 | An organization is granted a block of classless addresses with the starting address 199.34.32.0/27. How many addresses are granted? | 8 | 16 | A. 32 | None of the above | c |
| Unit 5 | | | | | | |
| 50 | Which one of the following source needs to pass information to all routers visited by datagram, the option used in | IP-by-IP option | Header-by-Header option | Hop-by-Hop Option | Loop-by-loop Option | c |

| 51 | IGMP is____protocol | an error reporting | an error reporting | a transmission | none of the above | B |
|---|---|---|---|---|---|---|
| 52 | Header size of the ICMP message is _ | 8-bytes | 8-bits | 16-bytes | 16-bits | A |
| 53 | What is header of datagram in IPv4___ | 20 to 60 bytes | 20 to 80 bytes | 20 to 40 bytes | 0 to 20 bytes | A |
| 54 | Fragmentation of a datagram is necessary only in a_____ | Datagram-based network | Virtual circuit network | Both A and B are true. | None of the above | C |
| 55 | Internet Control Message Protocol (ICMP) has been designed to compensate_____ | Error-reporting | Error-correction | Host and management queries | All of the mentioned | D |
| 56 | Which of the following is the Ethernet broadcast address used in ARP and RARP requests | 255.255.255.255 | 08:00:20:11:aa:01 | . ff:ff:ff:ff:ff:ff | 224.0.0.0 | C |
| 57 | What is the basic purpose of the Address Resolution Protocol (ARP | To convert Ethernet addresses to IP addresses | To list all configured interfaces on a system | To list the Ethernet name of a host machined | To resolve IP addresses to Ethernet addresses | D |
| 58 | What is the basic purpose of the Reverse Address Resolution Protocol (RARP)? | To resolve Ethernet addresses to IP addresses | To list all configured interfaces on a system | To list the Ethernet name of a host machine | To convert IP addresses to Ethernet addresses | A |

| Unit 6 | | | | | | |
|---|---|---|---|---|---|---|
| 59 | Return value of the UDP port "Chargen" is_ | String of characters | String of integers | Array of characters with integers | Array of zero's and one's | A |
| 60 | Return value of the UDP port "Chargen" is_ | String of characters | String of integers | Array of characters with integers | Array of zero's and one's | A |
| 61 | Which is the correct expression for the length of UDP datagram? | UDP length = IP length – IP header's length | UDP length = UDP length – UDP header's length | UDP length = IP length + IP header's length | UDP length = UDP length + UDP header's length | a |
| 62 | Communication offered by TCP is? | Full-duplex | Half-duplex | Semi-duplex | Byte by byte | A |
| 63 | Which TCP timer signifies its contribution in measuring the time of connection maintenance in TIME_WAIT state? | Keep alive Timer | Persist Timer | Retransmission Timer | Maximum Segment lifetime Timer | D |
| 64 | _____Control refers to methods of error detection and correction. | Flow | Error | Transmission | none of the above | B |
| 65 | Beyond IP, UDP provides additional services such as_____ | Routing and switching | Sending and receiving of packets | Multiplexing and demultiplexing | Demultiplexing and error checking | D |

| 66 | TCP groups a number of bytes together into a packet called? | Packet | Buffer | Segment | Stack | C |
|----|---|---|---|---|---|---|
| 67 | Return value of the UDP port "Chargen" is_____ | A. String of characters | B. String of integers | Array of characters with integers | Array of zero's and one's | A |

# Subjective Questions unitwise

## Unit 1. Introduction to Computer Network

1. Outline TCP/IP Reference model and explain the each layer in detail
2. Compare between topologies
3. Differentiate between LAN , MAN and WAN
4. Outline OSI Reference model and explain the each layer in detail.
5. What is hybrid topology, Explain with example?
6. Differentiate between OSI and TCP/IP reference model
7. List the different networking devices
8. List and explain the types of connection between the devices (Point-to-point and multipoint)
9. Note on following
10. Hub
11. Repeater
12. Bridge
13. Router
14. Switch
15. Gateway
16. Describe the types of communication between the devices with suitable diagram and examples (simplex , half duplex and full duplex)
17. Compare Router and Gateway
18. List and explain the physical topologies
19. Compare Bridge and Router

## Unit -2 Data Link Layer

1. List and explain the design Issues of the Data Link Layer.
2. List and Explain the services provided by Data Link Layer to Netwrok Layer.
3. What is framing ? What is need of framing. List the different framing Methods
4. Explain Character Count with suitable example. Write the drawback of Character count method.
5. Explain the character Stuffing with suitable example.

6. Explain the bit Stuffing with suitable example.
7. perform bit stuffing at sender side and de-stuffing at the receiver side for given data Message: 11011111110111110010
8. Draw the Binary Encoding, Manchester encoding, Differential Manchester encoding for given data 101100010
9. Discuss the types of error with suitable example.List the different error detecting methods
10. Explain how Checksum method is used for error detection, with Suitable example.Find hamming code for 4 bit data " 1101" .
11. What is sliding window (sender and receiver sliding window)

## Unit.3 Medium Access Control Sub layer

1. Explain the Dynamic Channel Allocation and List the different Multiple Access Protocols
2. What is random access protocol? List the random-access protocol
3. Explain the Pure ALOHA technique with Procedure and efficiency of the pure ALOHA protocol
4. Explain the slotted ALOHA technique and efficiency of the slotted slotted protocol
5. Explain CSMA along with 1 - persistent CSMA , Non persistent CSMA and P – persistent CSMA
6. Explain the CSMA with Collision Detection (CSMA/CD) along with algorithm
7. What is Binary exponential Back-off Algorithm
8. Describe the CSMA/CA
9. What is CONTROLLED ACCESS/ Collision free Protocol and list the Collision free Protocols
10. Explain the Collision free Protocols: (reservation) Bit Map Protocol
11. Explain Collision free Protocols: (reservation) Binary Countdown
12. Explain Collision free Protocols: Polling methods
13. Explain Collision free Protocols: Token Passing Methods
14. Explain IEEE 802.3
15. Explain IEEE 802.4
16. Explain IEEE 802.5

## Unit-4 Network Layer

1. Discuss the design issues of Network Layer
2. Define routing. Discuss the Properties of good Routing Algorithm, List the category of routing protocols
3. Define the following terms-
4. Optimality principle
5. Sink Tree
6. Illustrate the working of Shortest Path Routing (Dijkstra Alg)
7. Explain the Flooding Algorithm, what are problem of flooding and how to overcome the problem

8. Illustrate the working of Distance Vector Routing / Bellman-Ford routing algorithm
9.
10. Discuss the count to infinity problem of Distance Vector Routing
11. Explain the link state routing algorithm
12. Differentiate between flooding and routing
13. Define the congestion. What are causes to occur the congestion
14. List and explain the Approaches to control the congestion
15. Discuss the open loop solution to control the congestion.
16. Discuss the close loop solution to control the congestion. (Implicit and explicit feedback)
17. Note on
18. Load shedding
19. Jitter control
20. Explain and illustrates the working of Leaky Bucket Algorithm.
21. Explain and illustrates the working of Token Bucket Algorithm.
22. Difference between Leaky and Token Bucket.

## Unit.5 Internet Protocol

1. Draw and explain IP datagram format
2. Explain in brief Fragmentation.
3.  Draw and explain ARP packet format
4. Explain Error reporting messages in ICMPv6
5. Explain IGMP messages

## Unit-6 Transport Layer

1. draw and explain user datagram format.
 2. Explain UDP services
3. Explain TCP services
4. Explain 3 way handshake in TCP in detail.
5. Explain Error control in TCP.
6. note on TCP timers 7. Explain Socket system calls