Shivaji University , Kolhapur
Question Bank For Mar 2022 (Summer) Examination

Subject Code: 73279 Subject Name: Computer Networks-I

Unit-I Introduction to Computer Networks

Sr. No.	Question with options	Answer
1	With which of the following characteristics, the design issue of a physical layer does not deal? a) Mechanical b) Electrical c) Functional d) None of the above	d
2	Virtual terminal protocol is an example of the a) Application layer b) Presentation layer c) Transportation layer d) None of the above	a
3	Two Networks and Transport-layer protocols commonly used on Internet are a)TCP and SPX b) TCP and IP c) RIP and NLSP d) None of the above	b
4	4. Data which is routed between networks or from node to node within networks requires only the functions of OSI a) Layers 1 and 2 b) Layers 1 through 3 c) All layers d) None of the above	b
5	Usually traffic in a network is measured by a) blocking probabilities b) grade of service c) relative congestion d) erlangs	c
6	A device operation at the physical layer is called a a) Bridge b) Router c) Repeater	c

	d) None of the above	
7	Encryption and decryption are functions of a)Transport layer b) Session layer c) Presentation layer d) None of the above	c
8	8. Which of the following layers of the OSI reference model is concerned with the syntax of data exchanged between application entities? a) Presentation layer b) Application layer c) Transportation layer d) Session layer	a
9	Flow control in OSI models is done by a) Data link layer b) Network layer c) Transport layer d) Both data link and transport layers	a
10	Subnet usually comprises a) Layer 1 and 2 b) Layer 1 through 3 c) All layers d) None of the above	d
11	The Media Access Control Sublayer resides in which OSI layer? a) Transport b) Network c) Physical d) Data Link	d
12	TELNET, FTP, SMTP, Protocols fall in the following layer of OSI reference model a) Transport Layer b) Internet Layer c) Network Layer d) Application Layer	d
13	Which of the following is an application layer service ? a) Remote log-in b) File transfer and access c) Mail service d) All of the above	d
14	The main function of transport layer is a) Node-to-node delivery b) Process-to-process delivery	b

	c) Synchronization d) Updating and maintenance of routing tables	
15	Which of the following to keep track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet. a) Address Resolution Protocol (ARP) b) Internet Protocol (IP) c) Hypertext transfer Protocol (HTTP) d) Transmission Control Protocol/Internet Protocol (TCP/IP)	d
16	The layer responsible for end to end delivery of the entire message is a) Network layer b) Transport layer c) Session layer d) Data link layer	b
17	In OSI model, which of the following layer transforms information from machine format into that understandable by user a) Application b) Session c) Physical d) Presentation	d
18	How many bits internet address is assigned to each host on a TCP/IP internet which is used in all communications with the host ? a) 16 bits b) 32 bits c) 48 bits d) 64 bits	b
19	In OSI model, which of the following layer provides error-free delivery of data? a) Network layer b)Transport layer c) Session layer d)Data link layer	b
Unit-2 Data link layer		
1	Which error detection method involves polynomials? a) CRC b) Simple parity check c) Two dimensional parity check d) checksum	a
2	In cyclic redundancy checking, what forms the check bits? a) Remainder	a

	b) Divisor c) Quotient d) divident	
3	Automatic repeat request error management mechanism is provided by _____ a) logical link control sublayer b) media access control sublayer c) network interface control sublayer d) application access control sublayer	A
4	Header of a frame generally contains _____ a) synchronization bytes b) addresses c) frame identifier d) all of the mentioned	D
5	CRC stands for _____ a) cyclic redundancy check b) code repeat check c) code redundancy check d) cyclic repeat check	A
6	In Go back N if frames 4,5and 6 are received successfully ,the receiver may send an acknowledgement-------to the sender A) 5 B) 6 C) 7 D) Any of the above	C
7	ARQ stands for a) Automatic repeat quantization b) Automatic repeat request c) Automatic retransmission request d) Acknowledge repeat request	B
Unit-3 Medium Access Control Sub layer:		
1	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 random amount of time and then senses the line . again. a) nonpersistent b) 1-persistent c) p-persistent d) none of the above	a

2	The maximum throughput for pure ALOHA is _____ per cent. A. 12.2 B. 18.4 C. 36.8 D. none of the above	b
3	The vulnerable time for CSMA is the _____propagation time. A. the same as B. two times C. three times D. none of the abov	a
4	In the _____ method, a special packet called a _____ circulates through the ring. A. reservation: control frame B. polling: poll request C. token passing: token D. none of the above	c
5	In the _____ method, after the station finds the line idle it sends or refrain from sending based on the outcome of a random number generator. If the line is busy, it tries again. A. nonpersistent B. 1-persistent C. p-persistent D. none of the above	c
6	n _____, 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. A. FDMA B. TDMA C. CDMA D. none of the above	a
7	In _____, each station is forced to send only at the beginning of the time slot.	b

	A. pure ALOHA B. slotted ALOHA C. both (a) and (b) D. neither (a) nor (b)	
8	In _____ methods, no station is superior to another station and none is assigned the control over another. A. random access B. controlled access C. channelization D. none of the above	a
9	In _____, collisions are avoided through the use of three strategies: the interframe space, the contention window, and acknowledgments. A. CSMA/CA B. CSMA/CD C. either (a) or (b) D. both (a) and (b)	a
Unit-IV Network Layer:		
1	An organization is granted a block of classless addresses with the starting address 199.34.32.0/27. How many addresses are granted? A. 8 B. 16 C. 32 D. none of the above	c
2	Find the number of addresses in a block of classless addresses if one of the addresses is 12.2.2.7/24. A. 32 B. 64 C. 256 D. none of the above	c
3	Identify the class of the following IPv4 address: 191.1.2.3. A. A B. B C. C D. none of the above	b
4	In a block, the mask is 255.255.192.0; what is the prefix length? A. /20 B. /28 C. /18 D. none of the above	c
5	In a block, the prefix length is /24; what is the mask? A. 255.255.255.0 B. 255.255.242.0	a

	C. 255.255.0.0 D. none of the above\	
6	In classless addressing, the _____ is another name for the common part of the address range. A. suffix B. prefix C. netid D. none of the above	b
7	In classless addressing, the _____ is the varying part (similar to the hostid). A. suffix B. prefix C. hostid D. none of the above	a
8	In classless addressing, the prefix length defines the _____. A. netid B. hostid C. mask D. none of the above	c
9	In IPv4, class _____ has the greatest number of addresses in each block. A. A B. B C. C D. D	a
10	The first address assigned to an organization in classless addressing _____. A. must be a power of 4 B. must be evenly divisible by the number of addresses C. must belong to one of the A, B, or C classes D. none of the above	b
11	The number of addresses assigned to an organization in classless addressing _____. A. can be any number B. must be a multiple of 256 C. must be a power of 2 D. none of the above	c
12	The number of addresses in a class A block is _____. A. 65,534 B. 16,777,216 C. 256 D. none of the above	b

13	The number of addresses in a class B block is _____. A. 65,536 B. 16,777,216 C. 256 D. none of the above	a
14	The number of addresses in a class C block is _____. A. 65,534 B. 16,777,216 C. 256 D. none of the above	c
15	What is the default mask for class A in CIDR notation? A. /9 B. /8 C. /16 D. none of the above	b
16	What is the default mask for class B in CIDR notation? A. /9 B. /8 C. /16 D. none of the above	c
17	What is the default mask for class C in CIDR notation? A. /24 B. /8 C. /16 D. none of the above	a
18	What is the first address of a block of classless addresses if one of the addresses is 12.2.2.127/28? A. 12.2.2.0 B. 12.2.2.96 C. 12.2.2.112 D. none of the above	c
19	What is the result of ANDing 255 and 15? A. 255 B. 15 C. 0 D. none of the above	b
20	Which one is not a contiguous mask? A. 255.255.255.254 B. 255.255.224.0 C. 255.148.0.0 D. all are	c
21	A …… routing table contains information entered manually. A.static	a

	B.dynamic C.hierarchical D. non static	
22	A ……. routing table is updated periodically using one of the dynamic routing protocols. A.static B.dynamic C.hierarchical D. non static	b
23	In _____ delivery, the deliverer of the IP packet and the destination are on different networks. A) a connection-oriented B) a direct C) an indirect D) none of the above	c
24	In _____, each node maintains a vector (table) of minimum distances to every node. A) path vector B) distance vector C) link state D) none of the above	b
25	In distance vector routing, each node periodically shares its routing table with _____ and whenever there is a change. A) every other node B) its immediate neighbors C) one neighbor D) none of the above	b
26	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
	Unit 5-Internet Protocol	
1	Which one of the following source needs to pass information to all routers visited by datagram, the option used in A. IP-by-IP option B. B. Header-by-Header option C. Hop-by-Hop Option	C

	D. Loop-by-loop Option	
2	What is header of datagram in IPv4_____. A. 20 to 60 bytes B. 20 to 80 bytes C. 20 to 40 bytes D. 0 to 20 bytes	A
3	Fragmentation of a datagram is necessary only in a _____. A. Datagram-based network B. Virtual circuit network C. Both A and B are true. D. None of the above	**C**
4	What fields are required in the IP header to allow the destination to perform fragment reassembly**?** A. Identifier, MF (More Fragments), Offset, Header Length (IHL) and Total Length B. MF (More Fragments), Offset and destination IP address C. MF (More Fragments), datagram length, and destination IP address D. MF (More Fragments), options and offset	**D**
5	What is the basic purpose of the Address Resolution Protocol (ARP)? **A.** To convert Ethernet addresses to IP addresses B. To list all configured interfaces on a system C. To list the Ethernet name of a host machine D. To resolve IP addresses to Ethernet addresses	**D**
6	What is the basic purpose of the Reverse Address Resolution Protocol (RARP)? A. To resolve Ethernet addresses to IP addresses B. To list all configured interfaces on a system C. To list the Ethernet name of a host machine D. To convert IP addresses to Ethernet addresses	**A**
7	What is the basic purpose of the Reverse Address Resolution Protocol (RARP)? A. To resolve Ethernet addresses to IP addresses B. To list all configured interfaces on a system C. To list the Ethernet name of a host machine D .To convert IP addresses to Ethernet addresses	**A**
8	Which of the following is the Ethernet broadcast address used in ARP and RARP requests? A. 255.255.255.255	**C**

	B. 08:00:20:11:aa:01 C. ff:ff:ff:ff:ff:ff D. 224.0.0.0	
9	Internet Control Message Protocol (ICMP) has been designed to compensate _____. A. Error-reporting B. Error-correction C. Host and management queries D. All of the mentioned	**D**
10	Header size of the ICMP message is _____ A. 8-bytes B. 8-bits C. 16-bytes D. 16-bits	**A**
11	IGMP is _____ protocol. A. an error reporting B. a group management C. a transmission D. none of the above	**B**
Unit 6- Transport Layer		
1	Which of the following are transport layer protocols used in networking? A. TCP and FTP B. UDP and HTTP C. TCP and UDP D. HTTP and FTP	**C**
2	Which of the following is false with respect to UDP? A. Connection-oriented B. Unreliable C. Transport layer protocol D. Low overhead	**A**
3	Return value of the UDP port "Chargen" is _____. A. String of characters B. String of integers C. Array of characters with integers D. Array of zero's and one's	**A**

4	Beyond IP, UDP provides additional services such as _____. A. Routing and switching B. Sending and receiving of packets C. Multiplexing and demultiplexing D. Demultiplexing and error checking	**D**
5	Which is the correct expression for the length of UDP datagram? A. UDP length = IP length – IP header's length B. UDP length = UDP length – UDP header's length C. UDP length = IP length + IP header's length D. UDP length = UDP length + UDP header's length	**A**
6	TCP groups a number of bytes together into a packet called? A. Packet B. Buffer C. Segment D. Stack	**C**
7	Communication offered by TCP is? A. Full-duplex B. Half-duplex C. Semi-duplex D. Byte by byte	**A**
8	_____ Control refers to methods of error detection and correction. A. Flow B. Error C. Transmission D. none of the above	**B**
9	Which TCP timer signifies its contribution in measuring the time of connection maintenance in TIME_WAIT state? A. Keep alive Timer B. Persist Timer C. Retransmission Timer D. Maximum Segment lifetime Timer	**D**

Unit –1 Introduction to Computer Network

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

Unit -2 Data Link Layer

Q.1 List and explain the design Issues of the Data Link Layer.

Q.2 List and Explain the services provided by Data Link Layer to Netwrok Layer.

Q.3 What is framing ? What is need of framing. List the different framing Methods

Q.4 Explain Character Count with suitable example. Write the drawback of Character count method.

Q. 5,Explain the character Stuffing with suitable example.

Q.6 Explain the bit Stuffing with suitable example.

Q.7 perform bit stuffing at sender side and de-stuffing at the receiver side for given data

Message: 11011111110111110010

Q.8 Draw the Binary Encoding, Manchester encoding, Differential Manchester encoding for given data

101100010

Q.9 Discuss the types of error with suitable example

Q.10 List the different error detecting methods

Q.11 Explain how Checksum method is used for error detection, with Suitable example.

Q.12 Find hamming code for 4 bit data " 1101" .

Q.13 What is sliding window (sender and receiver sliding window)

Unit.3 Medium Access Control Sub layer

1. 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-
   - Optimality principle
   - Sink Tree
4. Illustrate the working of Shortest Path Routing (Dijkstra Alg)
5. Explain the Flooding Algorithm, what are problem of flooding and how to overcome the problem
6. Illustrate the working of Distance Vector Routing / Bellman-Ford routing algorithm
7. Discuss the count to infinity problem of Distance Vector Routing
8. Explain the link state routing algorithm
9. Differentiate between flooding and routing
10. Define the congestion. What are causes to occur the congestion
11. List and explain the Approaches to control the congestion
12. Discuss the open loop solution to control the congestion.
13. Discuss the close loop solution to control the congestion. (Implicit and explicit feedback)
14. Note on
    - Load shedding
    - Jitter control
15. Explain and illustrates the working of Leaky Bucket Algorithm.
16. Explain and illustrates the working of Token Bucket Algorithm.
17. 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
8. Explain socket address structure.