MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **01 JUNE 2022**

TY BTECH SEMESTER - V RE-EXAMINATION 2021 - 2022 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	Draw and explain TCP/IP model. (For diagram 2.5 marks,explanation 2.5 marks)	**[5]**	**C01**	**L1**
	b)	Define socket.List all the socket functions for TCP server and client side. (for defination 1 Mark,server functions 2 marks,client functions 2 mark)	**[5]**	**C01**	**L1**
	c)	Given data bits are 101001110 Draw the graph for following schemes a.Unipolar NRZ b.Polar NRZ c.Bipolar d.Machester e.Differential Manchester (For each correct ans 1 mark)	**[5]**	**C01**	**L2**
2	**a)**	Find the Hamming distance between two pairs of words i) d (000, 011) ii) d (10101, 11110) iii) d (01010, 00010) iv) d (1010, 0011) v) d (1110,1011) (For each correct ans 1 mark)	**[5]**	**C02**	**L1**

	b)	Given the dataword 101001111 and the divisor 10111, show the generation of the CRC codeword at the sender site (using binary division).	**[5]**	**C02**	**L2**
	c)	A sender uses the stop and wait ARQ protocol for reliable transmission of frames. Frames are of size 1000 bytes and the transmission rate at the sender is 80 Kbps. Size of an acknowledgement is 100 bytes and the transmission rate at the receiver is 8 Kbps. The one way propagation delay is 100 msec.calculate sender throughput in bytes/sec assuming no frame is lost. (Correct calculation of transmission delay 2marks,tranmission delay of acknowledgment 2marks,Useful time 2marks,Total time 2marks,Efficiency and througput 2marks).	**[10]**	**C02**	**L3**
3	**a)**	Write the subnet, broadcast address and valid host range for the following: i) 172.16.10.5 255.255.255.128 ii) 172.16.10.33 255.255.255.224 iii) 192.168.100.17, with 4 bits of subnetting iv) 192.168.100.66, with 3 bits of subnetting (For each correct ans 2.5 mark)	**[10]**	**C03**	**L3**
	b)	Compare Stop and Wait ARQ,Go back N ARQ and Selective Repeat ARQ based on following points Efficiency,Window Size,Minimum number of sequence numbers required,Retransmissions required if a packet is lost,Bandwidth Requirement,CPU usage,Level of difficulty in Implementation,Acknowledgements,Type of Transmission (For each 1 mark)	**[10]**	**C03**	**L4**
	c)	Explain path vector routing.Distinguish between Distance vector and Link state routing.(For path vector diagram and explanation 5 mark, difference between DVR and LSR 5mark)	**[10]**	**C03**	**L2**

4	**a)**	Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. i) IP Address of the subnet ii) Total number of IP Addresses iii) Total number of hosts that can be configured iv) Range of IP Addresses (For each correct subnet calculation 2.5 marks)	**[10]**	**CO4**	**L3**
	b)	Justify why TCP is reliable. (For each correct feature 1 mark)	**[5]**	**CO4**	**L4**
	c)	For each of the following protocols, determine whether TCP or UDP is used as the transport layer protocol and explain the reason for your choice. a. Telnet b. VoIP c. FTP d. DNS e. HTTP (For each correct answer 1 mark)	**[5]**	**CO4**	**L3**
5	**a)**	Illustrate in detail DNS. (Explanation 3M, Diagram 2M)	**[5]**	**CO5**	**L2**
	b)	Define following terms with example in terms of security i) Integrity ii) Confidentiality iii) Availability iv) Privacy (Defination and example 0.5 mark each)	**[5]**	**CO5**	**L2**
	c)	Explain SDN Architecture and communication.(Defination 1M, Architecture and communication 2M each)	**[5]**	**CO5**	**L2**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **24 FEBRUARY 2024**

TY BTECH SEMESTER - VI BACKLOG 2016 PATTERN 2023 - 2024 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

MID SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 2 HOURS **MAX MARKS :50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1 a) Define Protocol.Explain key elements of a protocol. **[5] CO1 L2**
(Defination 1Mark,for each correct element 1 mark)

b) Given data bits are 101001110 **[5] CO4 L3**
Draw the graph for following schemes
a.Unipolar NRZ
b.Polar NRZ
c.Bipolar
d.Machester
e.Differential Manchester
(For each ans 1 mark)

2 a) Match the following to one or more layers of the OSI model: **[5] CO2 L2**
a. Format and code conversion services
b. Establishes, manages, and terminates sessions
c. Reliable Process to Process delivery
d. Log-in and log-out procedures
e. Route selection
(For each ans 1Mark)

	b)	Difference between OSI and TCP/IP Model. *(Each correct difference 1 mark)*	**[5]**	**CO2**	**L2**
3	**a)**	Given the frequencies listed below, calculate the corresponding periods. a. 8 Hz b.24KHz c. 40MHz *(for ans a=1mark, b=2mark, c=2mark)*	**[5]**	**CO4**	**L2**
	b)	How Attenuation,Distortion and Noise affects the information transmission. *(Defination of Each 1mark, Explanation 2marks)*	**[5]**	**CO1**	**L2**
4	**a)**	For each of the following four networks, discuss the consequences if a connection fails. a. Five devices arranged in a mesh topology b. Five devices arranged in a star topology (not counting the hub/Switch) c. Five devices arranged in a bus topology d. Five devices arranged in a ring topology *(for ans a=2M, b=1, c=1, D=1)*	**[5]**	**C03**	**L4**
	b)	For n devices in a network, what is the number of cable links required for a mesh,ring, bus, and star topology? *(for ans a=2Mark, b=1mark, c=1mark, D=1mark)*	**[5]**	**CO3**	**L3**
5	**a)**	Draw and explain in brief the five components of a data communication system. *(Each component 1 marks)*	**[5]**	**CO1**	**L2**
	b)	Compare between Star,Mesh,Bus and Ring Topolgy. *(Each correct comparison 1 Mark)*	**[5]**	**C02**	**L2**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **13 DECEMBER 2022**

TY BTECH SEMESTER - V 2022 - 2023 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 2 HOURS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**Attempt any five**	**[10]**	
a)	How many bits are allocated for Network ID and Host ID in 23.192.157.234 address?	**CO3**	**L3**
b)	You have a network that needs 29 subnets while maximizing the number of host addresses available on each subnet. How many bits must you borrow from the host field to provide the correct subnet mask?	**CO3**	**L3**
c)	The network address of 172.16.0.0/19 provides how many subnets and hosts?	**CO3**	**L3**
d	For the following IP Addresses- 1.2.3.4 172.15.20.60 Identify the Class, Network IP Address, broadcast address	**CO3**	**L3**

e) Represent the following IPv4 addresses from binary notation to dotted-decimal notation **CO3 L3**

i. 10000001 00001011 00001011 11101111

ii. 11000001 10000011 00011011 11111111

f) A host with IP Address 10.100.100.100 wants to use loopback testing. **CO3 L3**

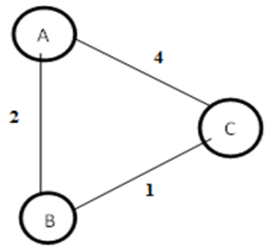
What will be-

Source IP Address

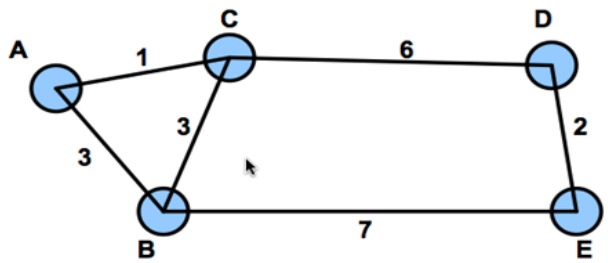
Destination IP Address

2 Attempt any one **CO3 L4**

a Construct a routing table for each router using a distance vector routing algorithm for the following network before and after the update. **[10]**



b) Consider the network shown below. Find the shortest form a to every node in the network and construct the routing table **[10] CO3 L4**



[2]

3 a	For each of the following applications, determine whether TCP or UDP is used as the transport layer protocol and explain the reason for your choice. a. Whatsapp text messaging b. Online games c. Web browsing d. Live streaming e. Email	**[5]**	**CO4**	**L3**
b)	What is the dhcp process for client machine?	**[5]**	**CO4**	**L2**
4 a)	What is the role of DNS? Explain with the help of DNS architecture diagram.	**[5]**	**C04**	**L2**
b)	Compare TCP with UDP protocol	**[5]**	**CO4**	**L4**
5 a)	Explain SDN Architecture and communication.	**[5]**	**CO5**	**L2**
5 b)	What are the types of sockets? Explain various socket primitives used in the connection-oriented client-server approach.	**[5]**	**CO4**	**L2**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **18 DECEMBER 2023**

TY BTECH SEMESTER-V 2019 REGULAR 2023-2024 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 2 Hours **MAX MARKS :50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 04**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

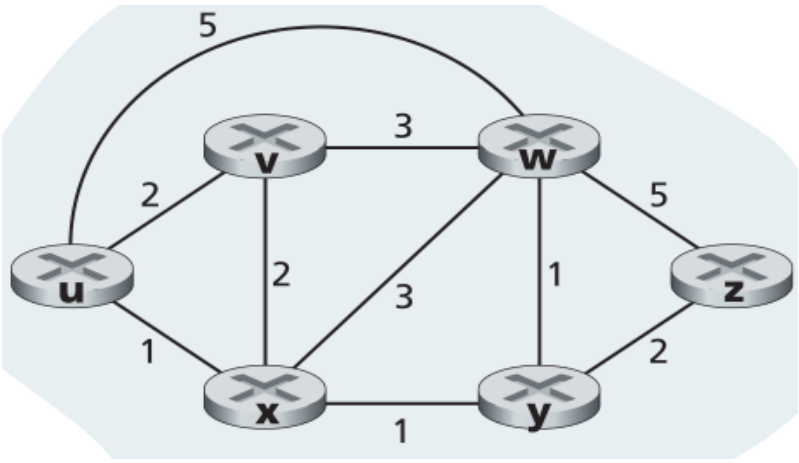
1 a) Identify the class of each address. **[5] CO3 L3**
i. 164.10.21.23
ii.196.90.52.43
iii.11110001 00100110 10110110 01111110
iv.00000001 00001011 00001011 11101111
v. 11000001 10000011 00011011 11111111
(For each correct identification 1 mark)

b) Compare Circuit Switching and Packet Switching techniques. **[5] CO3 L2**
(For each correct comparison 1 mark)

OR

a) Represent the following IPv4 addresses from binary notation to dotted-decimal notation and vice versa. **[5] CO3 L3**
i. 10111101.01111010.00010111.00010111
ii. 00100010.00111011.00010100.011010100
iii.11000000.10101000.00110010.00000001
iv.192.168.0.10
v. 203.222.23.34
(For each correct representation 1 mark)

b) Explain classful addressing scheme of IPv4. **[5] CO3 L2**
(Identification of classes 2 marks, explanation of classes 3 marks)

2	**a)**	Compare the TCP header and the UDP header. List the fields in the TCP header that are not part of the UDP header. Give the reason for each missing field. *(Listing the correct field 2 marks, reason for all listed field 3 marks)*	**[5]**	**CO3**	**L2**
	b)	Justify "TCP is a reliable protocol" *(For each correct feature 1 mark)*	**[5]**	**CO4**	**L4**
3	**a)**	Suppose a network with IP Address 200.1.2.0 is divided into 5 subnets, find following things for each subnet. i) IP Address of the subnet ii) Total number of IP Addresses iii) Total number of hosts that can be configured iv) Range of IP Addresses *(For each correct subnet calculation 2 marks)*	**[10]**	**CO3**	**L4**
		OR			
		Consider the following network. With the indicated link costs, use Dijkstra's shortest-path algorithm to compute the shortest path from u to all network nodes. (*Intermediate routing table calculations: 4 marks, Diagrams: 4 marks, Final routing table: 2 marks)*  	**[10]**	**CO3**	**L4**
4	**a)**	What are different types of socket? Explain various socket primitives used in connection oriented client server approach. *(Socket types 1 mark, socket primitives and explanation 4 marks)*	**[5]**	**CO4**	**L2**

	b)	What is Data Centric Networks (DCN). List all the types data centric networks and give at least two examples of each DCN. *(Defination 1 mark, List 1 mark, examples of each DCN 1 mark)*	**[5]**	**CO5**	**L2**
5	**a)**	Distinguish between DNS, HTTP,SMTP and FTP w.r.t Stateful / Stateless, Transport Layer Protocol Used,Connectionless / Connection Oriented, Persistent / Non-persistent and Port Number Used. *(For each correct answer 1 mark)*	**[5]**	**CO4**	**L2**
	b)	Explain SDN Architecture and communication. *(Defination 1 mark, Architecture and communication 2 marks each)*	**[5]**	**CO5**	**L2**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **25 JANUARY 2024**

TY BTECH SEMESTER - V RE-EXAMINATION BACKLOG 2019 PATTERN
2023 - 2024 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

COMPUTER NETWORKS

TIME : 3hrs **MAX MARKS : 80**

TOTAL NO OF QUESTIONS: 08 **TOTAL NO OF PRINTED PAGES:02**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

Q.1	Draw and explain OSI and TCP/IP model. *(For each correct diagram 2.5 marks and explanation 2.5 marks)*	**[10]**	**CO1**	**L1**
Q.2	If m = 1010, using the hamming method, determine the sender-side codeword or message. If at the receiver end, in the received codeword or message bit no. 6 is inverted, then identify the correct codeword or message. *(Sender-side codeword calculation: 5 marks; identification and correct code at the receiver end: 5 marks.)*	**[10]**	**CO1**	**L3**
Q.3	Compare Stop and Wait ARQ, Go back N ARQ and Selective Repeat ARQ based on following points Efficiency, Window Size, Minimum number of sequence numbers required, Retransmissions required if a packet is lost, Bandwidth Requirement, CPU usage, Level of difficulty in Implementation, Acknowledgements, Type of Transmission *(For each 1 mark)*	**[10]**	**C03**	**L4**

Q.4	illustrate classful addressing in detail. Find the class of each following address. i. 164.10.21.23 ii.196.90.52.43 iii.11110001.00100110. 10110110. 01111110 iv.00000001. 00001011. 00001011. 11101111 v. 11000001. 10000011. 00011011. 11111111 *(Classful addressing: 5marks, For each correct class identification:1 mark)*	**[10]**	**C03**	**L3**
Q.5	Compare the TCP header and the UDP header. List the fields in the TCP header that are not part of the UDP header. Give the reason for each missing field. *(TCP and UDP header with listing the correct field 5M, reason for each listed field 1M)*	**[10]**	**C02**	**L2**
Q.6	ilustrate in detail Simple Mail Transfer Protocol [SMTP] and File Transfer Protocol [FTP]. *(For each protocol explanation 3M and diagram 2M)*	**[10]**	**CO5**	**L2**
Q.7	Justify why HTTP's persistent connection is reliable.List the differences between persistent and Nonpersistent connection. *(For correct justifciation :5 marks , correct differences :5marks)*	**[10]**	**CO4**	**L4**
Q.8	Explain in detail SDN Architecture & communication. *(Defination 2M, Architecture and communication 4M each)*	**[10]**	**CO5**	**L2**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **22 SEPTEMBER 2023**

TY BTECH SEMESTER - V 2023 - 2024 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

MID SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 2 HOUR **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES:2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	To design and implementation of an effective and efficient network, what are the different network characteristices and criterias need to be considred? *(Any 3 Network Characteristices: 3 Marks, any 3 Network Criteria: 3 Marks)*	**[6]**	**CO1**	**L3**
	b)	Illustrate the concept of network topologies using heterogeneous network, showing a WAN with mesh topology and any other two topologies through the LANs connected to it. *(Diagram with mesh topology: 2 Marks and other 2 topologies: 2 Marks)*	**[4]**	**CO2**	**L2**
2		Explain in detail TCP/IP protocol suite with neat and clean diagram. Enlist any 2 protocols for every layer of TCP/IP network model. *(TCP/IP protocol suite with functions and services of each layer: 4 Marks, List of protocols: 4 Marks)*	**[8]**	**CO1**	**L2**

3		Elaborate with neat and clean diagram the different communication system with refrence to the following types - a. Hop-to-hop b. Host-to-host c. Process-to-process Also clearly mention the name of respective protocol layer, protocol data units used, and addressing scheme used in each type of communication. *(Hop - to - hop: 2 Marks, Host - to - host: 2 Marks, Process - to process: 2 Marks, Name of layers,PDUs and addressing scheme: 6 Marks)*	**[12]**	**CO2**	**L2**
4	**a)**	A system need to broadcast the video signals. Resolution of each frame used in the video is 640 by 480 pixels, and the frame is renewed 30 times per second. If each pixel uses 65,536 colors, then how many bits are required to send the complete contents of the frame per second Mbps. *(Number of bits calculation: 2 Marks, Bit-rate in Mbps: 3 Marks)*	**[5]**	**CO1**	**L3**
	b)	What are the propagation time and transmission time for a 50-Mbyte message if the bandwidth of the network is 100 Mbps? Assume that the distance between the sender and receiver is 160,000 km and propogation speed of the medium $3 * 10^8$ m/s. Calculate Latency in sec if the queueing delay is 0.10 sec and processing delay is 0.5 sec. *(Propagation Time in sec: 2 Marks, Transmission Time in sec: 2 Marks, Latency in sec: 1 Marks)*	**[5]**	**CO1**	**L3**
5	**a)**	Discuss the significance of digital to digitial conversion methods. Explain any three methods used for digital to digital conversion with suitable examples. *(Significance: 2 Marks, Explanation of any three methods: 3 Marks)*	**[5]**	**CO1**	**L3**
	b)	Draw the diagram using any five line coding techniques for the data bits stream - 1 0 1 0 1 1 0 0 0 0 1 1 *(5 graphs w.r.t. given example: 5 Marks)*	**[5]**	**CO1**	**L3**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **11 JUNE 2022**

TY BTECH SEMESTER - VI RE-EXAMINATION BACKLOG 2021 - 2022 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: 6 **TOTAL NO OF PRINTED PAGES: 3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

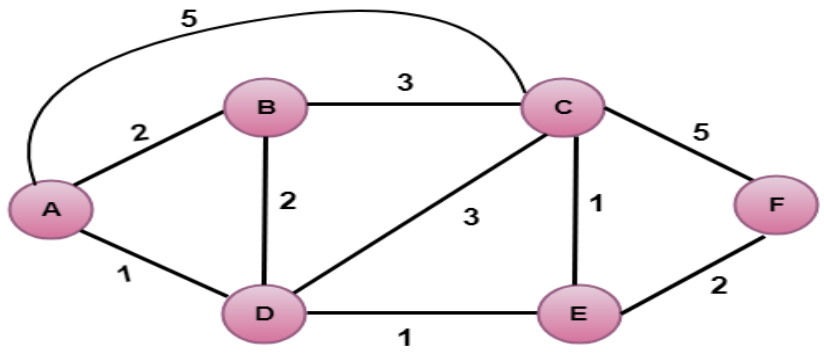
1 a)	Draw the basic diagram for data communications system, and discuss three network criterias necessary for an effective and efficient network design. *(Diagram: 3 Marks, 3 Network Criterias: 3 Marks)*	**[6]**	**CO2**	**L2**
b)	Compare TCP/IP and ISO/OSI network models. Also, discuss in detail the functions of any three layers of TCP/IP protocol suite. *(Comparision 5 Marks, Functions of any three layers - 6 Marks)*	**[10]**	**CO3**	**L2**
2 a)	Explain various types of multiplexing techniques with suitable example and neat diagrams. *(Multiplxing types (any 3): 3 Marks, examples :3 Marks)*	**[6]**	**CO4**	**L2**

	b)	Explain any three line coding techniques used for digital to digital conversion with suitable example. Draw the graphs using any four line coding techniques for the data bits stream - 10110100101011. *(3 line coding techniques: 6 Marks, 4 line coding graphs w.r.t. given bit stream: 4 Marks)*	**[10]**	**CO3**	**L3**
3	**a)**	Discuss the significance of Hamming Code in data communications. Generate the hamming code for the given data bits: 101110110 *(Hamming code and its signifincce: 4 Marks, Correct hamming code for a given data bits: 6 Marks)*	**[10]**	**CO3**	**L3**
	b)	Discuss different methods of random-access protocols used for broadcasting the frames in computer networks with suitable examples. *(Any 3 random access methods: 6 Marks, examples with neat suitable diagram: 4 Marks)*	**[10]**	**CO3**	**L4**
4	**a)**	Discuss the significance of flow control mechanism in data communications. Explain any two flow control mechanisms with suitable example. *(Significance of flow control mechanism: 2 Marks, any two flow control mechanisms: 6 Marks)*	**[8]**	**CO4**	**L2**
	b)	What are the propagation time and transmission time for a 10-Mbyte message if the bandwidth of the network is 200 Mbps? Assume that the distance between the sender and receiver is 200,000 km and the light travels at 2.4 * 108 m/s. Calculate Latency in sec if the queueing delay is 0.05 sec and processing delay is 0.3 sec. *(Propagation Time in sec: 3 Marks, Transmission Time in sec: 3 Marks, Latency in sec: 2 Marks)*	**[8]**	**CO4**	**L3**

5 a) Distinguish between IPv4 and IPv6 with respect to address space, security features, address length, address representaion, message transmission scheme, fragmentation. **[6] CO4 L3**

(6 diffrences with respect to given parametrs : 6Marks)

b) Build a routing table for a given diagram using link state routing protocol. **[12] CO5 L4**



(Routing table for all six nodes(routers): 12 Marks (2 Marks for each node)

6 a) Explain the concept of Domain Name System (DNS) with one suitable example. **[6] CO5 L2**

(Concept of DNS: 3 Marks, Example with proper explanation: 3 Marks)

b) Discuss Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP) with real time example and neat diagram. **[8] CO6 L4**

(SMTP and POP Concept: 3 Marks, real time example with proper explanation, justification and diagram: 5 Marks)

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **19 MAY 2022**

TY BTECH SEMESTER - VI 2021 - 2022 BACKLOG EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

COMPUTER NETWORKS

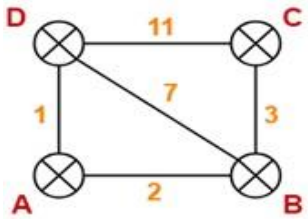
TIME : 2 HOURS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 05 **TOTAL NO OF PRINTED PAGES: 02**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	Distinguish between TCP and UDP w.r.t connection setup,data unit,data delivery and retransmission,reliability,flow control. *(For each correct answer 1 mark)*	**[5]**	**CO2**	**L4**
	b)	Justify why TCP is reliable. *(For each correct feature 1 mark)*	**[5]**	**CO2**	**L4**
2	**a)**	What are the types of sockets? Explain various socket primitives used in connection oriented client server approach. *(Socket types 1mark,socket primitives and explanation 4mark)*	**[5]**	**CO1**	**L2**
	b)	For each of the following applications, determine whether TCP or UDP is used as the transport layer protocol and explain the reason for your choice. a. Whatsapp text messaging b. Online games c. Web browsing d. Live streaming e. Email *(For each correct answer 1 mark)*	**[5]**	**CO4**	**L3**

3		Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. i) IP Address of the subnet ii) Total number of IP Addresses iii) Total number of hosts that can be configured iv) Range of IP Addresses *(For each correct subnet calculation 2.5 marks)*	**[10]**	**CO3**	**L4**
		OR			
		Construct routing table for each router using distance vector routing algorithm for following network before and after update.  *(For each correct routing table before update 0.5 mark and after update 2mark)*	**[10]**	**CO3**	**L4**
4	**a)**	Find the class of each address. i. 00000001 00001011 00001011 11101111 ii. 11000001 10000011 00011011 11111111 iii.11110001 00100110 10110110 01111110 iv.101.30.7.43 v. 193.59.42.90 *(For each correct answer 1 mark)*	**[5]**	**CO3**	**L3**
	b)	Explain classful addressing scheme of IPv4. *(Identification of classes 2M, explanation of classes 3M)*	**[5]**	**CO3**	**L2**
5	**a)**	Station A needs to send a message consisting of 9 packets to station B using a sliding window (window size 3) and go back n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no ACKs from B ever get lost), then what is the number of packets that A will transmit for sending the message to B? *(For each step 1 mark)*	**[5]**	**CO4**	**L3**
	b)	List and draw flow diagrams for the persistence methods of CSMA. *(For correct listing 1 mark and flow digrams 5marks)*	**[5]**	**CO3**	**L2**

Seat No:

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **7 JUNE 2019**

TY BTECH SEMESTER - VI 2018 - 2019 RE - EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100 MARKS**

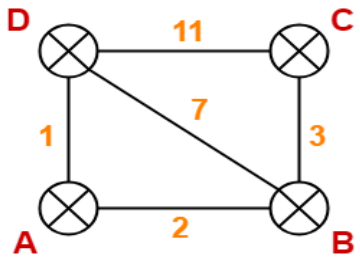
TOTAL NO OF QUESTIONS: 6 **TOTAL NO OF PRINTED PAGES: 3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks
4. All questions are compulsory

1	**a)**	Define following term w.r.t Line coding a. Signal Element b. Data Element c. Data Rate d. Signal Rate e. Baseline Wandering (Each definition 1 marks)	**[5]**	**CO1**	**L1**
	b)	Compare between Router,Switch and Hub. (Each comparison 1 Mark)	**[5]**	**CO1**	**L2**
2	**a)**	Draw and explain TCP/IP model. (For diagram 2 marks,explanation 2 marks)	**[4]**	**C02**	**L2**
	b)	Define socket.List all the socket functions for TCP server and client side. (for defination 1 Mark,server functions 2 marks,client functions 1 mark)	**[4]**	**CO2**	**L2**
	c)	Match the following to one or more layers of the OSI model: a. Reliable process-to-process message delivery b. Route selection c. Defines frames d. Transmission of bit stream across physical medium (for each 0.5 mark)	**[2]**	**C02**	**L1**

3	**a)**	A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x3+1. 1. What is the actual bit string transmitted? 2. Suppose the third bit from the left is inverted during transmission. How will receiver detect this error? (for each subsection 4 marks)	**[8]**	**CO3**	**L5**
	b)	Determine codeword using hamming code for the given data bits 10011010. (identification of parity bits 1marks,calculation of parity bits 1 mark each,final codeword 1mark)	**[6]**	**CO3**	**L4**
	c)	List and draw flow diagrams for the persistence methods of CSMA. (For listing 1 mark and flow digrams 5marks)	**[6]**	**CO3**	**L4**
4	**a)**	Given data bits are 101011100 Draw the graph for following schemes a.Unipolar NRZ b.Polar NRZ c.NRZ I(differential encoding) d.Bipolar e.Machester f. Differential Manchester (for each scheme of a,b,c,d 1mark,e and f 2marks each	**[8]**	**CO4**	**L3**
	b)	Explain in detail transmission modes.(For correct classification 1mark, explanation 7 mark)	**[8]**	**CO4**	**L3**
	c)	Compare between Baseband and Broadband transmission. (Each comparison 1 Mark)	**[4]**	**CO4**	**L2**
5	**a)**	If an IP protocol has no error reporting or error correcting mechanism.Justify how ICMP handle this. (Message format 2 marks,error reporting 3 marks,query messages 3 Marks)	**[8]**	**CO5**	**L5**

	b)	identify the class of each following address a.01111111.11110000.00001111.11111101 b.11100000.11110000.11000111.01111101 c.10101111.11001100.11111111.00011101 d.11001111.11111010.0101011.01111011 e.237.14.2.1 f.127.0.0.1 (Each answer 1 Mark)	**[6]**	**CO5**	**L3**
	c)	Distinguish between IPv4 and IPv6. (Each difference1 Mark)	**[6]**	**CO5**	**L4**
6	**a)**	Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. 1.IP Address of the subnet 2.Total number of IP Addresses 3.Total number of hosts that can be configured 4.Range of IP Addresses (For each subnet 2 marks)	**[8]**	**CO6**	**L5**
	b)	Apply distance vector routing algorithm to build routing table for each router for following network before and after Update.  (for each routing table before update 0.5 mark and after update 1mark)	**[6]**	**CO6**	**L3**
	c)	In your practical lab session you are perfomring your practical.You want to save your program on college server,How FTP will be used in this scenario. (Diagram 2marks, explnation 4 mark)	**[6]**	**C06**	**L3**

Seat No:

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **26 MARCH 2019**

TY BTECH SEMESTER - VI 2018 - 2019 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

IN COURSE EXAMINATION

COMPUTER NETWORKS

TIME : 2 HOURS **MAX MARKS : 50 MARKS**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	How 5 components of data communication relate each other to transfer a data from source to destination. Evaluation Scheme: detailing of each component 3 M corelation of each component 2 M	**[5]**	**CO1**	**L2**
	b)	A black and White television system uses unicode. Represent number of bits used and the bit pattern for such information transmission. Evaluation Scheme: identification of No.0f Bits 1 M,each pattern 1M	**[5]**	**CO2**	**L3**
	c)	Distinguish between walkie-Talkie and Telephone communication transmission. Evaluation Scheme: communication type identification for each 2M, deatiling of communication type for each 3M	**[5]**	**CO2**	**L4**
2	**a)**	Explain distributed processing and explain netwrok criterion for distributed processing. Evaluation Scheme: defination 1M, network criterion each 1M	**[5]**	**CO1**	**L2**
	b)	Draw hybrid topology with star topology as backbaone and three ring netwroks.	**[5]**	**CO3**	**L3**
3	**a)**	You have two computers connected by ethernet hub,is this a LAN,MAN, or WAN? Justify the reason. Evaluation scheme:identification of netwrok 1 M, Justification 4M	**[5]**	**CO3**	**L4**

	b)	Illustrate Hop-to-Hop delivery by data link layer. Evaluation scheme:Diagram 2M, Exlpaination 3M	**[5]**	**CO3**	**L3**
4	**a)**	If the power used to operate a FAN in home has frequency of 80HZ, calculate the period. Evaluation scheme:Identification of Correct equation 1M, problem solving 4M	**[5]**	**CO4**	**L2**
	b)	Explain bandwidth of periodic and nonperiodic composite signal. Evaluation scheme:Diagram for each 1M, Exlpaination of each 2M	**[6]**	**CO4**	**L2**
5	**a)**	Differntiate between Analog and digital signal	**[3]**	**CO1**	**L2**
	b)	Justify how HD settop box works with digital channel display though the receiver gets analog information form satelite. Evaluation scheme:Diagram A-D conversion 2M, Exlpaination A-D conversion 4M	**[6]**	**CO2**	**L2**

Seat No:

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **18 MAY 2019**

TY BTECH SEMESTER - VI 2018 - 2019 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100 MARKS**

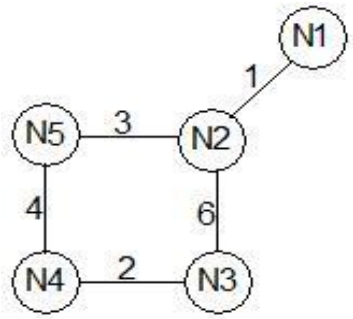
TOTAL NO OF QUESTIONS: 6 **TOTAL NO OF PRINTED PAGES:3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	For N device in a network what is the number of cable links required for a. Bus b. star c. Ring d. Mesh. For each correct answer : 1 Marks	**[4]**	**CO1**	**L2**
	b)	What is the bandwidth of signal that can be decompose in to five sine waves with frequency 10,20,50,100,200 Hz? And all Peak amplitude are same. Draw the Bandwidth. For correct answer 2 marks and Figure :4 marks	**[6]**	**CO1**	**L2**
	c)	Suppose computer sends packet at transport layer to another computer. There is no process to the destination port address running at the destination computer. What will happen? Comment your answer with example. For correct answer : 2 marks and comment with example: 4 marks	**[6]**	**CO2**	**L4**
2	**a)**	Compare TCP/IP Model with ISO-OSI reference model for each point : 1 mark	**[4]**	**CO2**	**L3**

	b)	A device is sending out data at the rate of 1000 bps i) How long does it take to send out 10 bits ii) How long does it take to send out single character? iii) How long does it take to send file of size 100000 character? for each subquestion : 2 marks	**[6]**	**CO4**	**L3**
	c)	Name the protocols which uses the either TCP or UDP protcol for establishing the connection for correct answer : 1 mark each	**[4]**	**CO6**	**L2**
	d)	What is Piggybacking in data link layer? For explaination : 2 marks and Diagram : 2 marks	**[4]**	**CO3**	**L2**
3	**a)**	Draw the graph of the Polar NRZ and unipolar NRZ scheme using each of the following data stream 10101010 and explain for plotting graph : 2 marks for each method and explaination: 1 mark each	**[6]**	**CO4**	**L3**
	b)	Discuss the ASK, FSK with neat diagram for explaination : 2 marks each and diagram : 1 mark each	**[6]**	**CO4**	**L2**
	c)	What is amplitude modulation with its application for application : 2 marks and explaination :2 marks	**[4]**	**CO4**	**L2**
4	**a)**	Compute the cyclic redundancy check (CRC) for this message M = 1010001101using the divisor polynomial $x^5 + x^4 + x^2 + 1$. for correct answer : 6 marks	**[6]**	**CO3**	**L3**
	b)	Write Detection versus Correction with example for each difference : 1 mark and example : 1 mark each	**[4]**	**CO3**	**L2**
	c)	What is the necessary for framing ? A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 01111100101, then the input bit-string is. For explaination : 3 marks and correct input bit string : 5 marks	**[8]**	**CO3**	**L4**

5	**a)**	Consider a network with five nodes, N1 to N5, as shown below. Apply Distance Vector Routing protocol to generate routing table at N3 for each step : 2 marks 	**[8]**	**CO5**	**L3**
5	**b)**	You are tasked by your supervisor with assigning IP address for institute which consist of 5 building. Each building will have 200 host Your supervisor tell you to only use 172.10.0.0 network. You will need to determine folllowing using subnetting i) Subnet mask ii) no of subnet iii) ip range of each buliding for subnet mask : 4 marks and no of subnet : 2 marks and ip range : 2 marks	**[8]**	**CO5**	**L5**
6	**a)**	What protocol can be applied when you want to transfer files between different platforms, such between UNIX systems and Windows servers? Justify for correct answer : 1 mark and justfication: 1 Mark	**[2]**	**CO6**	**L2**
6	**b)**	Suppose you want to access mitaoe.ac.in website,with the help of diagram,how the DNS will provide ip address of mitaoe.ac.in. For diagram : 4 marks and explaination : 4 marks	**[8]**	**CO6**	**L5**
	C)	What is the role of SMTP protocol in email system? With neat diagram explain the working of SMTP. What is the range of SMTP protocol? For role : 2 marks diagram: 2 marks and Range : 2 marks	**[6]**	**CO6**	**L4**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **22 JUNE 2023**

TY BTECH SEMESTER - VI RE-EXAMINATION BACKLOG 2016 PATTERN 2022-2023 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: 6 **TOTAL NO OF PRINTED PAGES: 4**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks
4. All questions are compulsory

1 a)	List and draw flow diagrams for the persistence methods of CSMA. (For correct listing 1 mark and flow digrams 5marks)	**[5]**	**CO3**	**L2**
b)	Difference between OSI and TCP/IP Model. (Each correct difference 1 mark)	**[5]**	**CO2**	**L2**
c)	Given data bits are 101000110 Draw the graph for following schemes 1.Unipolar NRZ 2.NRZ-L	**[5]**	**CO4**	**L3**

2 a)	Given the frequencies listed below, calculate the corresponding periods. a. 8 Hz b.24KHz c.40MHz (for correct ans a=1mark,b=2mark,c=2mark)	**[5]**	**CO4**	**L2**
b)	For n devices in a network, what is the number of cable links required for a mesh,ring, bus, and star topology? (for correct ans a=2mark,b=1mark,c=1mark,D=1mark)	**[5]**	**CO3**	**L3**
c)	Station A needs to send a message consisting of 9 packets to station B using a sliding window (window size 3) and go back n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no ACKs from B ever get lost), then what is the number of packets that A will transmit for sending the message to B? (For each step 1 mark)	**[5]**	**CO4**	**L3**
3 a)	Draw and explain in brief the five components of a data communication system. (Each component 1 marks)	**[5]**	**CO1**	**L2**
b)	Compare between Star,Mesh,Bus and Ring Topolgy. (Each correct comparison 1 Mark)	**[5]**	**C02**	**L2**
c)	Explain classful addressing scheme of IPv4. (Identification of classes 2M, explanation of classes 3M)	**[5]**	**CO3**	**L2**
4 a)	Find the class of each address. i. 00000001 00001011 00001011 11101111 ii. 11000001 10000011 00011011 11111111 iii.11110001 00100110 10110110 01111110 iv.101.30.7.43 v. 193.59.42.90 (For each correct answer 1 mark)	**[5]**	**CO3**	**L3**

b) For each of the following four networks, discuss the consequences if a connection fails. **[5] C03 L4**
a. Five devices arranged in a mesh topology
b. Five devices arranged in a star topology (not counting the hub/Switch)
c. Five devices arranged in a bus topology
d. Five devices arranged in a ring topology
(for correct ans a=2M,b=1,c=1,D=1)

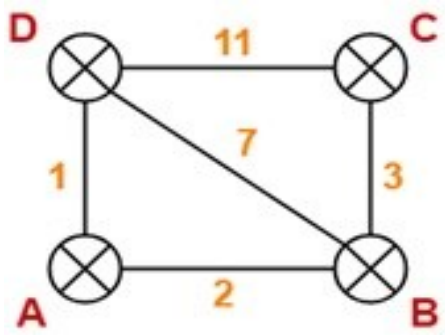
c) How Attenuation,Distortion and Noise affects the information transmission. **[5] CO1 L2**
(Defination of each 1mark,Explanation 2marks)

5 a) Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. **[10] CO3 L4**
i) IP Address of the subnet
ii) Total number of IP Addresses
iii) Total number of hosts that can be configured
iv) Range of IP Addresses
(For each correct subnet calculation 2.5 marks)

b) Match the following to one or more layers of the OSI model: **[5] CO2 L2**
a. Format and code conversion services
b. Hop to Hop Delivery
c. Reliable Process to Process delivery
d. Log-in and log-out procedures
e. Routing
(For each correct ans 1Mark)

c) Define Protocol.Explain key elements of a protocol. **[5] CO1 L2**
(Defination 1Mark,for each correct element 1 mark)

6 a) Construct routing table for each router using distance vector routing algorithm for following network before and after update. **[10] CO3 L4**



(For each correct routing table before update 0.5 mark and after update 2mark)

b) What are the types of sockets? Explain various socket primitives used in connection oriented client server approach. **[5] CO1 L2**

(Socket types 1mark,socket primitives and explanation 4mark)

c) For each of the following applications, determine whether TCP or UDP is used as the transport layer protocol and explain the reason for your choice. **[5] CO4 L3**

a. Whatsapp text messaging
b. Online games
c. Web browsing
d. Live streaming
e. Email

(For each correct answer 1 mark)

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **22 SEPTEMBER 2022**

TY BTECH SEMESTER-V 2022-23 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

MID SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 2 HOURS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 05 **TOTAL NO OF PRINTED PAGES: 02**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	Explain the five components of data communication with neat and clean diagram. Discuss the significance of 'protocol' with any three real time examples.	**[5]**	**CO1**	**L2**
	b)	Explain the different modes of communication with neat and clean diagram. Specify the real time applications of the same.	**[5]**	**CO1**	**L2**
2	**a)**	A computer monitor has a resolution of 1600 by 1200 pixels. Each pixel uses 65,536 colors. If 30 frames are displayed per second on the screen then how many bits are needed to send the complete contents of a screen of 5 second?	**[5]**	**CO1**	**L3**
	b)	What is the theoretical capacity of a channel in each of the following cases? a. Bandwidth: 45 KHz $SNR_{dB} = 50$ b. Bandwidth: 250 KHz $SNR_{dB} = 8$ c. Bandwidth: 10 MHz $SNR_{dB} = 30$	**[5]**	**CO1**	**L3**

3	**a)**	i) Discuss the need of Digital signal to Digital signal conversion techniques. ii) Explain any four techniques with their advantages and disadvantages. iii) Draw the graphs (neat & clean diagrams) for following bit patterns (w.r.t. 4 techniques discussed in (ii)) 010111100011	**[10]**	**CO1**	**L3**
4	**a)**	Explain in detail the flow control mechanism- Stop and Wait ARQ protocol with neat and clean diagram. Also, write the pseudocode for both sender and receiver.	**[6]**	**CO2**	**L2**
	b)	Why the window sizes at sender and receiver sides are different in Go-Back-N ARQ and Selective Repeat ARQ protocols. Also, mention the window sizes of both the protocols.	**[4]**	**CO2**	**L2**
5	**a)**	Differentiate between the hop-to-hop, host-to-host, and process-to-process communication with neat and clean diagram. Also mention the name of TCP/IP layer responsible for the same.	**[5]**	**CO2**	**L2**
	b)	Calculate the subnet mask of the following IP addresses. Also mention the class of the same. a. 15.15.15.15 b. 145.145.145.145 c. 215.215.215.215 d. 9. 9.9.9	**[5]**	**CO3**	**L3**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS323T **24 FEBRUARY 2023**

TY BTECH SEMESTER - VI BACKLOG 2016 PATTERN 2022 - 2023 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

MID SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME: 2hrs **MAX MARKS: 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1 a) Define Protocol.Explain key elements of a protocol. **[5] CO1 L2**
(Defination 1Mark,for each correct element 1 mark)

b) Given data bits are 101001110 **[5] CO4 L3**
Draw the graph for following schemes
a.Unipolar NRZ
b.Polar NRZ
c.Bipolar
d.Machester
e.Differential Manchester
(For each correct ans 1 mark)

2 a) For each of the following four networks, discuss the consequences if a connection fails. **[5] C03 L4**

a. Five devices arranged in a mesh topology

b. Five devices arranged in a star topology (not counting the hub/Switch)

c. Five devices arranged in a bus topology

d. Five devices arranged in a ring topology

(for correct ans a=2M,b=1,c=1,D=1)

b) For n devices in a network, what is the number of cable links required for a mesh,ring, bus, and star topology? **[5] CO3 L3**

(for correct ans a=2Mark,b=1mark,c=1mark,D=1mark)

3 a) Given the frequencies listed below, calculate the corresponding periods. **[5] CO4 L2**

a. 8 Hz

b.24KHz

c. 40MHz

(for correct ans a=1mark,b=2mark,c=2mark)

b) How Attenuation,Distortion and Noise affects the information transmission. **[5] CO1 L2**

(Defination of Each 1mark,Explanation 2marks)

4 a) Match the following to one or more layers of the OSI model: **[5] CO2 L2**

a. Format and code conversion services

b. Establishes, manages, and terminates sessions

c. Reliable Process to Process delivery

d. Log-in and log-out procedures

e. Route selection

(For each correct ans 1Mark)

b) Difference between OSI and TCP/IP Model. **[5] CO2 L2**

(Each correct difference 1 mark)

5 a) Draw and explain in brief the five components of a data communication system. **[5] CO1 L2**

(Each component 1 marks)

b) Compare between Star,Mesh,Bus and Ring Topolgy. **[5] C02 L2**

(Each correct comparison 1 Mark)

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS **MAY 2022**

TY BTECH SEMESTER - VI BACKLOG 2016 PATTERN 2022 - 2023 EXAM

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

COMPUTER NETWORKS

TIME : 2 HOURS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 3**

INSTRUCTIONS TO CANDIDATES:

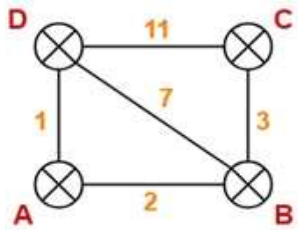
1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1 a) Find the class of each address. **[5] CO3 L3**
i. 00000001 00001011 00001011 11101111
ii. 11000001 10000011 00011011 11111111
iii.11110001 00100110 10110110 01111110
iv.101.30.7.43
v. 193.59.42.90
(For each correct answer 1 mark)

b) Explain classful addressing scheme of IPv4. **[5] CO3 L2**
(Identification of classes 2M, explanation of classes 3M)

2 a) What are the types of sockets? Explain various socket primitives used in connection oriented client server approach. **[5] CO1 L2**
(Socket types 1mark,socket primitives and explanation 4mark)

b)	For each of the following applications, determine whether TCP or UDP is used as the transport layer protocol and explain the reason for your choice. a. Whatsapp text messaging b. Online games c. Web browsing d. Live streaming e. Email (For each correct answer 1 mark)	**[5]**	**CO4**	**L3**
3 a)	Station A needs to send a message consisting of 9 packets to station B using a sliding window (window size 3) and go back n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no ACKs from B ever get lost), then what is the number of packets that A will transmit for sending the message to B? (For each step 1 mark)	**[5]**	**CO4**	**L3**
b)	List and draw flow diagrams for the persistence methods of CSMA. (For correct listing 1 mark and flow digrams 5marks)	**[5]**	**CO3**	**L2**
4	Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. i) IP Address of the subnet ii) Total number of IP Addresses iii) Total number of hosts that can be configured iv) Range of IP Addresses (For each correct subnet calculation 2.5 marks)	**[10]**	**CO3**	**L4**
	OR			
	Construct routing table for each router using distance vector routing algorithm for following network before and after update.	**[10]**	**CO3**	**L4**



(For each correct routing table before update 0.5 mark and after update 2mark)

5 a) Distinguish between TCP and UDP w.r.t connection setup,data unit,data delivery and retransmission,reliability,flow control. **[5] CO2 L4**
(For each correct answer 1 mark)

b) Justify why TCP is reliable. **[5] CO2 L4**
(For each correct feature 1 mark)

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **16 JUNE 2022**

TY BTECH SEMESTER - V RE-EXAMINATION 2022-2023
EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1 a) Illustrate in detail DNS. *(Explanation 3M, Diagram 2M)* **[5] CO5 L2**

b) Define following terms with example in terms of security **[5] CO5 L2**
i) Integrity
ii) Confidentiality
iii) Availability
iv) Privacy
(Defination and example 0.5 mark each)

c) Explain SDN Architecture and communication. **[5] CO5 L2**
(Defination 1M, Architecture and communication 2M each)

2 a) Find the Hamming distance between two pairs of words **[5] C02 L1**
i) d (000, 011)
ii) d (10101, 11110)
iii) d (01010, 00010)
iv) d (1010, 0011)
v) d (1110,1011)
(For each correct ans 1 mark)

b) Given the dataword 101001111 and the divisor 10111, show the generation of the CRC codeword at the sender site (using binary division). **[5] C02 L2**

c) A sender uses the stop and wait ARQ protocol for reliable transmission of frames. Frames are of size 1000 bytes and the transmission rate at the sender is 80 Kbps. Size of an acknowledgement is 100 bytes and the transmission rate at the receiver is 8 Kbps. The one way propagation delay is 100 msec.calculate sender throughput in bytes/sec assuming no frame is lost. *(Correct calculation of transmission delay 2marks,tranmission delay of acknowledgment 2marks,Useful time 2marks,Total time 2marks,Efficiency and througput 2marks).* **[10] C02 L3**

3 a) Write the subnet, broadcast address and valid host range for the following: **[10] C03 L3**

i) 172.16.10.5 255.255.255.128
ii) 172.16.10.33 255.255.255.224
iii) 192.168.100.17, with 4 bits of subnetting
iv) 192.168.100.66, with 3 bits of subnetting
(For each correct ans 2.5 mark)

b) Compare Stop and Wait ARQ,Go back N ARQ and Selective Repeat ARQ based on following points Efficiency,Window Size,Minimum number of sequence numbers required,Retransmissions required if a packet is lost,Bandwidth Requirement,CPU usage,Level of difficulty in Implementation,Acknowledgements,Type of Transmission *(For each 1 mark)* **[10] C03 L4**

c) Explain path vector routing.Distinguish between Distance vector and Link state routing. *(For path vector diagram and explanation 5 mark, difference between DVR and LSR 5mark)* **[10] C03 L2**

4 a) Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. **[10] CO4 L3**
i) IP Address of the subnet
ii) Total number of IP Addresses
iii) Total number of hosts that can be configured
iv) Range of IP Addresses
(For each correct subnet calculation 2.5 marks)

b) Justify why TCP is reliable. *(For each correct feature 1* **[5] CO4 L4**

c) For each of the following protocols, determine whether TCP or UDP is used as the transport layer protocol and explain the reason for your choice. **[5] CO4 L3**
a. Telnet
b. VoIP
c. FTP
d. DNS
e. HTTP
(For each correct answer 1 mark)

5 a) Draw and explain TCP/IP model. **[5] C01 L1**
(For diagram 2.5 marks,explanation 2.5 marks)

b) Define socket.List all the socket functions for TCP server and client side. **[5] C01 L1**
(for defination 1 Mark,server functions 2 marks,client functions 2 mark)

c) Given data bits are 101001110 **[5] C01 L2**
Draw the graph for following schemes
a.Unipolar NRZ
b.Polar NRZ
c.Bipolar
d.Machester
e.Differential Manchester
(For each correct ans 1 mark)

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS343T **16 JUNE 2022**

TY BTECH SEMESTER - V RE-EXAMINATION 2022-2023
EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

COMPUTER NETWORKS

TIME : 3 HOURS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1 a) Illustrate in detail DNS. *(Explanation 3M, Diagram 2M)* **[5] CO5 L2**

b) Define following terms with example in terms of security **[5] CO5 L2**
i) Integrity
ii) Confidentiality
iii) Availability
iv) Privacy
(Defination and example 0.5 mark each)

c) Explain SDN Architecture and communication. **[5] CO5 L2**
(Defination 1M, Architecture and communication 2M each)

2 a) Find the Hamming distance between two pairs of words **[5] C02 L1**
i) d (000, 011)
ii) d (10101, 11110)
iii) d (01010, 00010)
iv) d (1010, 0011)
v) d (1110,1011)
(For each correct ans 1 mark)

b) Given the dataword 101001111 and the divisor 10111, show the generation of the CRC codeword at the sender site (using binary division). **[5] C02 L2**

c) A sender uses the stop and wait ARQ protocol for reliable transmission of frames. Frames are of size 1000 bytes and the transmission rate at the sender is 80 Kbps. Size of an acknowledgement is 100 bytes and the transmission rate at the receiver is 8 Kbps. The one way propagation delay is 100 msec.calculate sender throughput in bytes/sec assuming no frame is lost. *(Correct calculation of transmission delay 2marks,tranmission delay of acknowledgment 2marks,Useful time 2marks,Total time 2marks,Efficiency and througput 2marks).* **[10] C02 L3**

3 a) Write the subnet, broadcast address and valid host range for the following: **[10] C03 L3**

i) 172.16.10.5 255.255.255.128
ii) 172.16.10.33 255.255.255.224
iii) 192.168.100.17, with 4 bits of subnetting
iv) 192.168.100.66, with 3 bits of subnetting
(For each correct ans 2.5 mark)

b) Compare Stop and Wait ARQ,Go back N ARQ and Selective Repeat ARQ based on following points Efficiency,Window Size,Minimum number of sequence numbers required,Retransmissions required if a packet is lost,Bandwidth Requirement,CPU usage,Level of difficulty in Implementation,Acknowledgements,Type of Transmission *(For each 1 mark)* **[10] C03 L4**

c) Explain path vector routing.Distinguish between Distance vector and Link state routing. *(For path vector diagram and explanation 5 mark, difference between DVR and LSR 5mark)* **[10] C03 L2**

4 a) Suppose a network with IP Address 200.1.2.0 is divided into 4 subnets, find following things for each subnet. **[10] CO4 L3**
i) IP Address of the subnet
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(For each correct subnet calculation 2.5 marks)

b) Justify why TCP is reliable. *(For each correct feature 1* **[5] CO4 L4**

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