Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2021

Subject Code:3150710 Date:27/12/2021

Subject Name:Computer Networks

Time:02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	What is topology? Explain star topology in brief.	**03**
	(b)	Explain various delay which are occur in data packet transmission.	**04**
	(c)	Explain functionality of Repeater, Hub, Bridge, Switch, Router and Gateway.	**07**
Q.2	**(a)**	Write short note on Domain Name System (DNS).	**03**
	(b)	What is HTTP? Differentiate its persistent and non-persistent types with request-response behavior of HTTP.	**04**
	(c)	Draw the layered architecture of OSI reference model and write at least two services provided by each layer of the model.	**07**
		OR	
	(c)	Explain DHCP and Email in detail.	**07**
Q.3	**(a)**	Explain Physical Address, IP address, Port Address in brief.	**03**
	(b)	Compare IPv4 and IPv6.	**04**
	(c)	Explain Distance Vector Routing Algorithm.	**07**
		OR	
Q.3	**(a)**	Discuss the principles of Reliable Data Transfer.	**03**
	(b)	Give difference between connection oriented and connectionless services.	**04**
	(c)	What do you mean by congestion and overflow? Explain the slow-start component of the TCP congestion-control algorithm.	**07**
Q.4	**(a)**	Explain packet fragmentation with example.	**03**
	(b)	Write a short note on broadcast and multicast routing.	**04**
	(c)	What is IP address? Explain sub netting with example.	**07**
		OR	
Q.4	**(a)**	Give differences between TCP and UDP.	**03**
	(b)	What is socket? Explain its importance at transport layer protocols.	**04**
	(c)	Discuss transport layer multiplexing and demultiplexing concepts.	**07**
Q.5	**(a)**	Discuss CSMA/CD Protocol.	**03**
	(b)	Explain CRC code generation with example.	**04**
	(c)	Describe Go Back N and Selective Repeat protocol.	**07**
		OR	
Q.5	**(a)**	Discuss parity check for error detection in data transfer.	**03**
	(b)	What do you mean by random access protocols? Explain slotted ALOHA in brief.	**04**
	(c)	Draw and explain Ethernet Frame Structure.	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – SUMMER 2021

Subject Code:3150710 Date:15/09/2021

Subject Name:Computer Networks

Time:10:30 AM TO 01:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Discuss throughput in the network.	**03**
	(b)	Differentiate TCP/IP protocol stack and OSI Reference model of the computer network.	**04**
	(c)	How does the reservation protocol work to control access of the medium? Discuss the disadvantages of it.	**07**
Q.2	**(a)**	Define Unicasting, Multicasting and Broadcasting.	**03**
	(b)	Discriminate fully qualified domain name from partially qualified domain name.	**04**
	(c)	How the p-persistent is different from 1-persisent in CSMA/CD? Explain how the Backoff time is set in the case of collision.	**07**
		OR	
	(c)	Explain the working mechanism of the binary countdown protocol. Which limitation of bitmap protocol is overcome by it?	**07**
Q.3	**(a)**	Bit steam 10011101 is to be transmitted using the standard CRC method with divisor value x^3+1. Generate the CRC code word.	**03**
	(b)	Why the virtual circuit is to be set up for transmission of message in TCP protocol?	**04**
	(c)	Explain Distance Vector routing protocol.	**07**
		OR	
Q.3	**(a)**	How the encapsulation is done in the transport layer?	**03**
	(b)	What is subnetting? Why is it required?	**04**
	(c)	Explain Link State routing protocol.	**07**
Q.4	**(a)**	How does store-n-forward technique work at network layer?	**03**
	(b)	Discuss the various measures which are used to compute the cost between two routers of the network.	**04**
	(c)	Explain TCP Congestion control in detail.	**07**
		OR	
Q.4	**(a)**	How many subnets can be created for the subnet mask 255.255.255.224? Which IP address class these subnet does belong to?	**03**
	(b)	What is process-to-process delivery in transport layer? Why do we require it though host-to-host delivery is provided by the network layer?	**04**
	(c)	Explain User Datagram Protocol.	**07**
Q.5	**(a)**	Why the data encryption is necessary at the presentation layer of OSI reference model?	**03**
	(b)	How does chock packet technique work for congestion control?	**04**
	(c)	What is POP3 protocol? How the limitations of POP3 protocols are overcome by IMAP?	**07**

OR

Q.5	**(a)**	Why data compression is necessary at the presentation layer of OSI reference model?	**03**
	(b)	Differentiate Congestion control and flow control.	**04**
	(c)	Explain MIME structure for electronic mail.	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:3150710 Date:09/06/2022

Subject Name:Computer Networks

Time:02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	What is the difference between a host and an end system? List several different types of end systems.	**03**
	(b)	Explain IP Address, Physical Address and Port Number in Brief.	**04**
	(c)	Draw the layered architecture of OSI reference model and write at least two services provided by each layer of the model.	**07**
Q.2	**(a)**	Explain the role of Domain Name Server (DNS) in Internet?	**03**
	(b)	Explain functionality of Repeater, HUB, Bridge, Switch, Router and Gateway.	**04**
	(c)	How end-to-end congestion control is provided by TCP.	**07**
		OR	
	(c)	Consider the 7-bit generator, G=10011, and suppose that D has the value1010101010. What is the value of R?	**07**
Q.3	**(a)**	Discuss parity check for error detection in data transfer.	**03**
	(b)	List and briefly describe three types of switching fabrics used in Routers. Which, if any, can send multiple packets across the fabric in parallel?	**04**
	(c)	Describe Go Back N and Selective Repeat protocol.	**07**
		OR	
Q.3	**(a)**	Give difference between connection oriented and connection less services.	**03**
	(b)	Why do HTTP, FTP, SMTP, and POP3 run on top of TCP rather than on UDP? Name one application that uses UDP and why?	**04**
	(c)	Explain RDT 2.0.	**07**
Q.4	**(a)**	Give difference between flow control verses Congestion Control.	**03**
	(b)	What is HTTP? Differentiate its persistent and non-persistent types with request-response behavior of HTTP.	**04**
	(c)	Explain distance vector routing algorithm.	**07**
		OR	
Q.4	**(a)**	Explain CSMA/CD Protocol.	**03**
	(b)	Why are different inter-AS and intra-AS protocols used in the Internet?	**04**
	(c)	Explain Link-State routing algorithm.	**07**

Q.5	**(a)**	Explain in brief socket, multiplexing and demultiplexing.	**03**
	(b)	How DHCP protocol works?	**04**
	(c)	Explain TCP segment structure and justify the importance of its field values.	**07**

OR

Q.5	**(a)**	Describe how a botnet can be created, and how it can be used for a DDoS attack.	**03**
	(b)	What do you mean by random access protocols? Explain slotted ALOHA in brief.	**04**
	(c)	Explain IPv4 datagram format and importance of each field	**07**