Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2140709 Date:01/01/2022

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)**	Identify the OSI layers for the following: 1) Check-pointing, token management 2) Syntax and semantics of the information transmitted 3) True end to end layer	**03**
	(b)	What are the various reasons for using layered protocol stack?	**04**
	(c)	Differentiate between Persistent and Non-persistent CSMA protocol.	**07**
Q.2	**(a)**	Data link protocols almost always put the CRC in a trailer rather than in a header. Why?	**03**
	(b)	How the HTTP differ from the HTTPS protocol?	**04**
	(c)	Explain the working of Binary Countdown protocol along with its channel efficiency.	**07**
		OR	
	(c)	Compare and contrast various static channel allocation methods in detail.	**07**
Q.3	**(a)**	Explain Bit and Byte Stuffing with example.	**03**
	(b)	What is the role of IGMP and ICMP protocol?	**04**
	(c)	Explain the working of Link State Routing algorithm with example.	**07**
		OR	
Q.3	**(a)**	What is meant by TCP SYN and TCP FIN packets?	**03**
	(b)	Explain flow and error control in TCP.	**04**
	(c)	What do you mean by Traffic shaping? Discuss the Leaky and token bucket algorithm.	**07**
Q.4	**(a)**	Discuss the process of route aggregation.	**03**
	(b)	How TCP segment differs from UDP segment?	**04**
	(c)	Design a network consisting of two switched Ethernet LANs connected by a router. Each switch is connected with one host (i.e., H_1 with S_1 and H_2 with S_2). Explain the sequence of actions takes place when H_1 pings to H_2 in context to ARP and IP Protocols.	**07**
		OR	
Q.4	**(a)**	Is deadlock possible in TCP? If yes, when?	**03**
	(b)	Discuss the need of the Dynamic Host Configuration Protocol (DHCP).	**04**
	(c)	Explain the three way handshake process in TCP.	**07**

Q.5	**(a)**	What is the basic idea behind the congestion window in TCP congestion control mechanism?	**03**
	(b)	Explain the role of the following TCP socket system calls: 1) Connect () 2) bind ()	**04**
	(c)	What is the role of IMAP protocol? Justify the statement, "IMAP is a better choice than POP (Post office Protocol)".	**07**

OR

Q.5	**(a)**	Besides bandwidth and latency, what other parameter is needed to give a good characterization of the quality of service offered by a network used for *live streaming traffic*, and *Internet banking traffic*.	**03**
	(b)	Discuss the UDP checksum mechanism with example.	**04**
	(c)	Explain the use of following network commands: 1) tcpdump 2) ifconfig 3) traceroute 4) netstat 5) ping 6) route 7) arp	**07**