Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (OLD) - EXAMINATION – SUMMER 2018

Subject Code:150702 Date:04/05/2018

Subject Name:Computer Network

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.**

Q.1	**(a)**	What is topology? List out different types of topology and explain each in detail.	**07**
	(b)	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 following terms in brief: (i) Protocol (ii) Propagation delay (iii) WAN (iv) Encryption (v) TDM (vi) Packet switching (vii) UTP	**07**
	(b)	Draw and explain Ethernet 802.3 Frame structure.	**07**
		OR	
	(b)	Explain Connectionless Transport protocol UDP with popular Internet applications.	**07**
Q.3	**(a)**	Explain the term piggybacking, sending window and receiving window. Explain One-Bit sliding window protocol.	**07**
	(b)	Compare UDP and TCP.	**07**
		OR	
Q.3	**(a)**	What is IP address? Explain different classes of IP address.	**07**
	(b)	Explain subnetting with an example.	**07**
Q.4	**(a)**	Explain ICMP & IGMP in detail.	**07**
	(b)	List out different protocols used in Email System and explain each in brief.	**07**
		OR	
Q.4	**(a)**	Explain Distance-Vector Routing algorithm with an example	**07**
	(b)	A bit stream 110101011 is transmitted using standard CRC method. The generator polynomial is x^4+x^1+1 .Show the actual bit string transmitted.	**07**
Q.5	**(a)**	Explain CSMA and CSMA/CD protocols.	**07**
	(b)	Explain DNS.	**07**
		OR	
Q.5	**(a)**	Differentiate Datagram and Virtual circuit.	**07**
	(b)	Consider a packet of length L which begins at end system A and travels over three links to a destination end system. These three links are connected by two packet switches. Let di, si, and Ri denote the length, propagation speed, and the transmission rate of link i, for i = 1, 2, 3. The packet switch delays each packet by dproc. Assuming no queuing delays, in terms of di, si, Ri, (i = 1, 2, 3), and L, what is the total end-to-end delay for the packet? Suppose now the packet is 1,500 bytes, the propagation speed on all three links is $2.5 \cdot 10^8$ m/s, the transmission rates of all three links are 2 Mbps, the packet switch processing delay is 3 msec, the length of the first link is 5,000 km, the length of the second link is 4,000 km, and the length of the last link is 1,000 km. For these values, what is the end-to-end delay?	**07**

****