Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– IV • EXAMINATION – SUMMER 2017

Subject Code : 2640001 Date:30/05/ 2017

Subject Name: Fundamentals of Networking

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.**

Q.1 **(a)** Answer the following questions.

1. Explain the following terms. **03**
   (a) Broadcasting (b) Unicasting (c) Multicasting
2. What is piggybacking? **01**
3. What is Jitter? **01**
4. Explain the following resource record types of DNS database. **02**
   (a) AAAA (b) PTR

(b) 1. Write the difference between Radio Waves and Micro Waves **03**
2. Write the difference between Switch and Hub **03**
3. Explain the term ‘bandwidth’. **01**

Q.2 **(a)** 1. Write the difference between Repeater and Amplifier. **03**
2. Explain different modulation techniques. **03**
3. Explain the term ‘burst error’. **01**

(b) Write a short note on OSI layer in detail. **07**

OR

(b) 1. How PCF and DCF Modes are managed together in Wireless Network? Explain. **04**
2. Explain the following terms w.r.t Ethernet. **03**
(a) Dual Speed Cards (b) Auto-negotiation

Q.3 **(a)** 1. Explain different types of TCP timers in detail. **04**
2. Explain Binary Exponential Back-off algorithm. **03**

(b) What is delayed duplicates problem? Explain Three-way handshake method to establish a connection. **07**

OR

Q.3 **(a)** How the initial sequence number of segment during the establishment of connection and for the subsequent segments could be decided by TCP? What is the relation between Clock rate and speed of sending bytes to generate initial sequence number by TCP? **07**

(b) Write the advantages of hierarchy of domain namespace. **07**

Q.4 **(a)** Explain Selective Repeat protocol implementation at data link layer in detail. **07**

(b) Explain Aloha and Slotted Aloha in detail. **07**

OR

Q.4 **(a)** Explain IEEE 802.3 and DIX frame structure in detail. **07**

(b) Explain the four service classes defined in IEEE 802.16 in detail. **07**

Q.5 **(a)** 1. Explain the following framing techniques.
   (i) Bit stuffing **03**
   (ii) Character Count **03**
2. Explain the term : Window advertisement **01**

	(b)	1. Write the difference between Digital Signal and Analog Signal	**03**
		2. Explain DNS Poisoning.	**04**
		OR	
Q.5	**(a)**	1. Differentiate : Connection- oriented vs Connectionless Forwarding	**04**
		2. Explain Explicit Congestion Notification	**02**
		3. State True or False with reason – "In datagram networks, congestion control can't be provided by admission control policy".	**01**
	(b)	1. Explain the Count-to-infinity problem and its solution.	**04**
		2. Explain the importance of Age field in Link State routing protocol.	**03**

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