Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER-IV EXAMINATION – WINTER 2015

Subject Code: 640001 **Date: 30-11-2015**

Subject Name: Fundamentals of Networking

Time:10.30 a.m. To 01.00 p. m. **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.	**07**
		(1) The bandwidth of medium is depends on what?	
		(2) Name the fundamental cryptographic principles.	
		(3) Name the characteristics of electromagnetic waves.	
		(4) What is total internal reflection?	
		(5) Define term frame bursting in gigabit Ethernet.	
		(6) Define term resolver at application layer.	
		(7) Give full form of SMTP.	
	(b)	(I) Explain bit stuffing with appropriate example.	**04**
		(II) Explain the characteristics of UTP cable.	**03**
Q.2	**(a)**	Explain OSI reference model with its all seven layers in details.	**07**
	(b)	(I) Explain properties of a channel.	**04**
		(II) Explain resource record with respect to DNS.	**03**
		OR	
	(b)	(I) Explain RSA with appropriate example.	**04**
		(II) Explain the need of share resources.	**03**
Q.3	**(a)**	(I) Explain duties of transport layer in brief.	**04**
		(II) Explain cipher block chaining mode.	**03**
	(b)	(I) Explain admission control algorithm to prevent congestion.	**04**
		(II) Explain three way handshaking at transport layer.	**03**
		OR	
Q.3	**(a)**	(I) Compare POP3 and IMAP.	**04**
		(II) Explain optimality principal for routing at network layer.	**03**
	(b)	(I) Explain requirements of a good routing algorithm in brief.	**04**
		(II) Explain any three usual TCP timers at transport layer.	**03**

Q.4	**(a)**	(I) Explain RTS and CTS with respect to hidden station and exposed station problem.	**04**
		(II) Explain the process of selective repeat. Why is it named so?	**03**
	(b)	(I) Explain types of connections supported by classic Ethernet.	**04**
		(II) Explain process level addressing at transport layer.	**03**

OR

Q.4	**(a)**	(I) Explain CRC for error detection with suitable example of your choice.	**04**
		(II) What are sliding windows? How are they used in data communication?	**03**
	(b)	(I) Differentiate 802.11 and 802.16.	**04**
		(II) Explain normal frame structure of 802.16 in brief.	**03**
Q.5	**(a)**	(I) Explain distance vector routing in brief.	**04**
		(II) Explain count-to-infinity problem at network layer.	**03**
	(b)	(I) Explain transposition cipher with suitable example of your choice.	**04**
		(II) Explain triple DES with suitable example of your choice.	**03**

OR

Q.5	**(a)**	(I) Differentiate multimode fiber and single mode fiber.	**04**
		(II) Explain the limitation of CSMA/CD.	**03**
	(b)	(I) Discuss important issues related to wireless transmission.	**04**
		(II) Explain the benefit of link aggregation.	**03**

****