Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEM-VI Examination May 2011

Subject code: 161704

Subject Name: Analog and Digital Communication

Date: 21/05/2011 **Time: 10.30 am – 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)**	Power radiated by a transmitter with carrier unmodulated is 10 KW and radiated power is 11.25 KW when carrier is sinusoidally modulated. Calculate modulation index m. If another sine wave corresponding to 30% modulation is transmitted simultaneously. Determine total radiated power.	**07**
	(b)	Describe RS 232C standard and compare it with RS 422 standard.	**07**
Q.2	**(a)**	Explain importance of modulation in communication with suitable example.	**07**
	(b)	Define noise figure. Explain noise figure calculation.	**07**
		OR	
	(b)	Compare frequency modulation and amplitude modulation.	**07**
Q.3	**(a)**	Explain frequency shift keying and application of it in detail.	**07**
	(b)	A 20 MHz carrier is modulated by a 400 Hz audio sine wave. If the carrier voltage is 4V and the maximum deviation is 10KHz. Write the equation of this modulated wave for (a) FM and (b) PM. If the modulating frequency is now changed to 2 KHz, all else remaining constant, write a new equation for(c) FM and (d) PM.	**07**
		OR	
Q.3	**(a)**	Write a note on pulse code modulation.	**07**
	(b)	List methods for error detection and error correction. Explain any one method in detail.	**07**
Q.4	**(a)**	Briefly describe OSI model architecture.	**07**
	(b)	Mention about architecture of synchronous optical network system.	**07**
		OR	
Q.4	**(a)**	Discuss advantages and disadvantages of communication using optical fiber.	**07**
	(b)	Explain wireless LANs using CSMA/CA.	**07**
Q.5	**(a)**	Describe IEEE 802.3 And Ethernet. Give difference between both.	**07**
	(b)	Write a note on system network architecture operating sessions.	**07**
		OR	
Q.5	**(a)**	Elucidate high-level data link Control protocol.	**07**

(b) Introduce following terms **07**

i. Network Interface card
ii. Pulse width modulation
iii. Pre-emphasis
iv. Cyclic redundancy check
v. Companding
vi. Noise
vii. Metropolitan area network

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