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

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI- EXAMINATION – SUMMER 2016

Subject Code:161704 **Date:17/05/2016**

Subject Name:Analog and Digital Communication

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)**	Define noise figure. Explain noise figure calculation.	**07**
	(b)	Explain importance of modulation in communication with suitable example.	**07**
Q.2	**(a)**	Derive the formula for the instantaneous value of an FM voltage and define the modulation index. And also draw the waveforms of information signal and its FM modulated signal	**07**
	(b)	Describe power relation in AM wave.	**07**
		OR	
	(b)	An amplifier operating over the frequency range from 12 MHz to 15 MHz has a 0.9 K ohm input resistor. Using thermal agitation noise formula find rms noise voltage at the input to this amplifier if the ambient temperature is 27°C. Boltzmann's constant $k=1.38 \times 10^{-23}$ J/K.	**07**
Q.3	**(a)**	Write a note on pulse code modulation.	**07**
	(b)	Enlist and compare different digital modulation techniques.	**07**
		OR	
Q.3	**(a)**	Write a note on cyclic redundancy check as a synchronous error detection method.	**07**
	(b)	List the layers of the OSI model and explain function of each layer in detail.	**07**
Q.4	**(a)**	Describe RS232C interface standard and draw its null modem configuration.	**07**
	(b)	Describe IEEE 802.3 And Ethernet. Give difference between both.	**07**
		OR	
Q.4	**(a)**	For a bit stream 10100111011 draw the waveform in following line coding UNZ,URZ,BNZ-AMI, BRZ-AMI, Manchester(Biphase) and differential Manchester format.	**07**
	(b)	Describe V-Series modems V.34 and V.90.	**07**
Q.5	**(a)**	Explain wireless LANs using CSMA/CA.	**07**
	(b)	Write a note on fiber distributed data interface.	**07**
		OR	
Q.5	**(a)**	Explain IEEE 802.6 Metropolitan Area Network.	**07**
	(b)	Mention about serial and encoded data formats with example.	**07**

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