Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER • 2014

Subject Code: 160802 Date: 28-11-2014

Subject Name: Electronics Communication

Time: 02:30 pm - 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 do you mean by "Communication"? Describe in detail Communication system with the help of block-diagram.	**07**
	(b)	Draw the circuit diagram of high frequency transformer and derive the equation for transfer impedances.	**07**
Q.2	**(a)**	Explain the signal to noise ratio [SNR] of an amplifier and effect of amplification on the SNR.	**07**
	(b)	A 30 MHz carrier is modulated by a 500 Hz audio sine wave, If the carrier voltage is 10 volt and the maximum deviation is 12 kHz, Write the equation of this modulated wave for :(A) F. M. (B) P.M.	**07**
		OR	
	(b)	Describe in detail: "FRIIS'S FORMULA".	**07**
Q.3	**(a)**	What are the advantages of single sideband (SSB) modulation over double sideband with suppressed carrier (DSBSC)? Calculate the percent power saving for a DSBSC signal for the modulation percentage of (i) 100 % and (ii) 50 %.	**07**
	(b)	State and prove following properties of Fourier Transform 1. Time Shifting 2.Frequency Shifting 3.Convolution in time domain.	**07**
		OR	
Q.3	**(a)**	The antenna current of an AM broadcast transmitter, modulated to a depth of 40 percent by an audio sine wave, is 11 A. It increases to 12 A as a result of simultaneous modulation by another audio sine wave. What is the modulation index due to this second wave?	**07**
	(b)	Write a short note on: : (1) Shot Noise (2) Flicker Noise	**07**
Q.4	**(a)**	In a broadcast superheterodyne receiver having no RF amplifier, the loaded Q of the antenna coupling circuit is 100.If the intermediate frequency is 455kHz, calculate (a) the image frequency and its rejection ratio at 1000kHz and (b) the image frequency and its rejection ratio at 25 MHz.	**07**
	(b)	Explain waveforms at various points of a super heterodyne Receiver.	**07**
		OR	
Q.4	**(a)**	Explain the Armstrong method of FM generation with neat diagram.	**07**
	(b)	Explain the significance of the terms 'sensitivity' and 'selectivity' as applied to a receiver. Which of the receiver stages control these characteristics?	**07**
Q.5	**(a)**	What do you mean by altitude control? Explain Multiple-access methods With diagram.	**07**
	(b)	Explain capacitive tap with circuit diagram and find transfer impedance. Explain what is meant by polar mount antenna?	**07**
		OR	
Q.5	**(a)**	Explain polarization of satellite signal.	**07**

(b) Explain capacitive tap with circuit diagram and find transfer impedance. Explain what is meant by polar mount antenna. **07**

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