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

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 160802 **Date: 08/05/2017**

Subject Name: Electronic 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 following terms: (1) Analog signal (2) Digital signal (3) Frequency (4) Wavelength (5) Baseband signal (6) Bandwidth and (7) Spectrum.	**07**
	(b)	Draw parallel tuned (RLC) circuit with phasor diagram and derive resonance frequency equation, also explain why it is called rejector circuit?	**07**
Q.2	**(a)**	Draw the circuit diagram of high frequency transformer and derive the equation for transfer impedance.	**07**
	(b)	Draw series tuned (RLC) circuit with phasor diagram and derive resonance frequency equation, also explain why it is called selector circuit?	**07**
		OR	
	(b)	Describe in detail: “Friiss Formula”.	**07**
Q.3	**(a)**	Write a short note on tracking.	**07**
	(b)	Define signal and show some standard test signals graphically and express them mathematically.	**07**
		OR	
Q.3	**(a)**	Write a short note on communication receiver.	**07**
	(b)	Obtain the Fourier Transform of a DC signal having amplitude of unity.	**07**
Q.4	**(a)**	Draw the AM waveforms for more than 100%, less than 100%, with 100% and 0% modulation. Assume that the modulating signal is a pure sine wave. Give comment on how to achieve this?	**07**
	(b)	Define Frequency Modulation and derive mathematical expression for F.M.	**07**
		OR	
Q.4	**(a)**	Compare DSBFC, DSBSC, SSB and VSB technique.	**07**
	(b)	Explain Superheterodyne FM Receiver in detail.	**07**
Q.5	**(a)**	Write a short note on Pre-emphasis and De-emphasis.	**07**
	(b)	List the properties of Fourier Transform and explain any three with proof.	**07**
		OR	
Q.5	**(a)**	Define Amplitude Modulation and derive mathematical expression for A.M.	**07**
	(b)	State and explain Kepler’s laws in relation to artificial satellites orbiting the earth. Differentiate between geosynchronous and geostationary satellite orbits.	**07**

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