Sanjay Ghodawat University, Kolhapur 2019-20

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017 EXM/P/09/01

Year and Program:2019-20 **School of Technology** **Department of Electrical and Electronics Engineering**

Course Code:EET3074 **Course Title: Communication Engineering** **Semester – V**

Day and Date Tuesday 26/11/19 **End Semester Examination (ESE)** **Time:3hr Max Marks: 100** 10.30am to 1.30pm

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Answer the following.**			
a)	Describe with neat schematic, the elements of Basic Electronic Communication systems.	07	L_1	CO1
	OR			
a)	Prove that $P_t = P_c (1+m^2/2)$. Describe the significance of above formula.	07	L_2	CO2
b)	An modulating signal $10 \sin(2\pi \times 1000t)$ is used to amplitude modulate a carrier of $20 \sin(2\pi \times 10000t)$. Calculate the following. 1. Modulation Index 2.Side band frequency 3.Amplitude of each sideband 4. Bandwidth.	08	L_3	CO4
Q.2	**Answer the following.**			
a)	Illustrate the operation of a Balance modulator in detail with the help of a circuit diagram.	08	L_1	CO2
	OR			
a)	Draw and Explain any one method of SSB Generation technique in AM.	08	L_2	CO2
b)	Compare Amplitude modulation and Frequency Modulation.	07	L_4	CO3
Q.3	**Attempt any two**			
a)	Describe the following receiver parameters: i) Sensitivity ii) Selectivity iii) Fidelity iv) Tracking	08	L_3	CO3
b)	Illustrate with block diagram operation of Super heterodyne receiver.(SHR)	08	L_2	CO2

ESE

	c)	Illustrate with block diagram operation of Tunned Radio Frequency (TRF) receiver.	08	L_2	CO2
	d)	Interpret with schematic and a vector diagram the operation of Foster – Seeley discriminator for FM receiver	08	L_3	CO3
Q.4		**Attempt any two**			
	a)	State the Sampling Theorem and Illustrate the types of Sampling.	09	L_1	CO3
	b)	Describe PWM modulation and demodulation.	09	L_2	CO2
	c)	Compare PAM, PWM and PPM modulation.	09	L_4	CO4
Q.5		**Attempt any two**			
	a)	Prove that the Signal to Noise ratio of a PCM system for a sinusoidal signal is 1.8 + 6N dBs.	09	L_5	CO4
	b)	Illustrate any one Source coding i.e Digital Pulse technique with modulator and demodulator.	09	L_2	CO1
	c)	Compare and Contrast between the following digital modulation techniques, ASK,FSK,PSK and QPSK ,	09	L_4	CO3
Q.6		**Attempt any three**			
	a)	Describe Quantization with its types also List its Laws.	06	L_1	CO1
	b)	Interpret the significance of Shannon's Channel Capacity theorem.	06	L_3	CO4
	c)	List and describe Types of Error Control Codes.	06	L_3	CO3
	d)	Compute all the Codes for (6,3) code using following generator Matrix	06	L_4	CO4

$$G = \begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 1 \\ 0 & 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 0 & 1 \end{bmatrix}$$

*****

ESE