Q.P. Code: 18EC0408 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year II Semester Supplementary Examinations July-2021

ANALOG COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Draw the block diagram of communication system.	2M
	b	Define modulation index, carrier swing and percentage modulation of FM.	2M
	c	Explain (i) Signal to Noise Ratio (ii) Figure of merit (iii) Friis formula	2M
	d	What is the need for pulse modulation systems?	2M
	e	Explain Shannon's encoding Algorithm	2M

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Explain radio frequency spectrum & its application used in communication system with a neat sketch.	6M
	b	Explain the concept of frequency mixing.	4M

OR

3	a	Draw the neat circuits and equivalent circuits (for different modes) of ring modulator using diodes for generating DSB-SC signal.	5M
	b	Generate DSB-SC signal with the help of ring modulator using diodes, with a neat sketch of waveforms.	5M

UNIT-II

4	a	Expand the expression for FM signal in terms of Bessel functions.	6M
	b	Explain the generation of FM using direct method.	4M

OR

5	a	Write short note on Pre-Emphasis and De-Emphasis circuits.	6M
	b	Explain non-linear effects in FM system.	4M

UNIT-III

6	a	Explain the concept of narrowband noise plus sine wave.	5M
	b	Explain noise equivalent bandwidth.	5M

OR

7	a	Calculate the noise figure for an SSB-SC system.	5M
	b	Compare the noise performance in frequency modulated system and amplitude modulated system.	5M

UNIT-IV

8	a	What is the need for pulse modulation systems?	3M
	b	With block diagram, explain the generation of PWM signals.	7M

OR

9	a	Explain about Frequency Division Multiplexing.	5M
	b	Compare TDM and FDM techniques	5M

UNIT-V

10	a	What are the main functions of a radio receiver?	5M
	b	Classify Radio receivers depending upon the applications	5M

OR

11	a	What is heterodyning? Write about different types of super-heterodyne Receivers.	5M
	b	Write a brief note about advantages of super-heterodyning	5M

END