DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2023

PRINCIPLES OF ELECTRONIC COMMUNICATION

[Maximum marks: 75]   [Time: 3 Hours]

PART A

I. Answer all the following questions in one word or one sentence. Each question carries 1 mark

(9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	The process of changing the parameters of the carrier signal, in accordance with the instantaneous amplitude of message signal is called as …..	M1.01	R
2	Name the modulation scheme used for the transmission of television signals.	M1.02	R
3	List any two pulse modulation schemes.	M2.02	R
4	Define radiation intensity.	M2.03	R
5	What is the VHF band range of FM transmitter?	M3.01	R
6	Balanced Modulator is used to generate……….	M3.02	R
7	Define SNR	M3.03	R
8	List any two characteristics of radio receiver.	M4.01	R
9	Diode detector is also called as……..	M4.03	R

PART B

II. Answer any eight questions from the following. Each question carries 3 marks.

(8 x 3 = 24 Marks)

		Module outcome	Cognitive level
1	List any three applications of FM	M1.01	R
2	State sampling theorem with mathematical expression.	M2.01	R
3	Explain the need for pre-emphasis.	M3.01	U
4	Draw the block diagram of balanced modulator	M3.02	R
5	Define noise. List various types of noises.	M3.03	R
6	Draw the circuit diagram and characteristics of de-emphasis.	M3.01	R

7	Define the following terms: (1)Fidelity (2) Noise Figure	M4.01	R
8	Draw the block diagram of AM receiver.	M4.02	R
9	Why delayed AGC is better than simple AGC?	M4.03	R
10	Compare AM and FM receiver.	M4.02	U

PART C
Answer all questions. Each question carries seven marks

(6 x 7 = 42 Marks)

		Module outcome	Cognitive level
III	The peak amplitude of AM signal varies from 2v to 10v. Determine the modulation index, carrier power, side band power and total power. **OR**	M1.04	A
IV	The FM signal is represented as s(t) = 10cos[2Π10^{6}t+8sin4Π10^{3}t]. Calculate modulation index, frequency deviation, bandwidth and power.	M1.04	A
V	Derive the expression of an AM wave. **OR**	M1.03	U
VI	Explain the need of modulation.	M1.01	U
VII	Explain the working of PWM modulator with circuit diagram and waveforms. **OR**	M2.02	U
VIII	With a neat sketch explain microstrip antenna.	M2.03	U
IX	Illustrate the concept of electromagnetic radiation. **OR**	M2.03	U
X	Draw the circuit diagram and waveforms of PAM modulator and explain its working.	M2.02	U
XI	Explain the block diagram of indirect method of an FM transmission. **OR**	M3.01	U
XII	With circuit diagram explain the working of AM collector modulator circuit.	M3.02	U
XIII	Explain the block diagram of Superhetrodyne receiver. **OR**	M4.02	U
XIV	Illustrate the operation of diode detector with circuit diagram	M4.03	U

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