

Unit II

Roll No.

Total Pages : 03

BT-3/D-14

8306

ANALOG COMMUNICATION

ECE-203-E

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What is Noise ? Also mention its various sources.
(b) An antenna is connected to a receiver having an equivalent noise temperature of 100°K . The available gain of the receiver is 10^8 and noise bandwidth is 10MHz . If the available output noise power is $10\text{ }\mu\text{W}$, determine the antenna temperature.
2. (a) Analyze the addition of noise due to several sources.
(b) Determine noise bandwidth of a parallel RLC filter having a 3-dB bandwidth B.

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3. (a) Draw the block diagram of a communication system and analyze the operation of its constituents.
(b) What is DSBSC ? With the help an appropriate circuit diagram, explain a typical method of achieving DSBSC.
4. (a) Draw the circuit diagram of a diode detector and explain its operation giving the respective waveforms. Also explain how you will set the value of RC time constant in this detector.
(b) What is Vestigial side band transmission ? How will you achieve this transmission ?

Unit III

5. (a) Define Frequency Modulation. Also illustrate the relationship between phase and frequency modulation.
(b) Draw the block diagram of an Indirect Method of frequency modulation and analyze its operation.

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6. (a) With appropriate diagram, explain the operation of pre-emphasis circuit.
- (b) An FM carrier is sinusoidal modulated. Determine those values of modulation index for which all the power will lie in the sidebands.

Unit IV

7. (a) Give the block diagram of an AM transmitter and explain the function of its constituents.
- (b) Discuss the following :
- (i) Frequency scintillation
 - (ii) Frequency drift.
8. (a) Draw the block diagram of simple FM transmitter using reactance modulator and explain its working.
- (b) Write a detailed note on the tracking and alignment of receivers.