

Roll No.

Total Pages : 03

BT-3/D-20

43006

ANALOG COMMUNICATION

ECE-203E

(Option-I)

Time : Three Hours]

[Maximum Marks : 100

Note : There is total eight questions. Attempt *Five* questions, selecting at least *one* question from each Unit. Each question carries equal marks.

Unit I

1. (a) Define SNR and Noise Figure. Write a note on the measurement and calculation of noise figure in a network. **10**
- (b) Summarize the cause and effects of thermal noise in electronic system in terms of noise power, noise voltage and spectral density. **10**
2. (a) Determine noise bandwidth of parallel RLC filter having a 3-dB bandwidth B. **10**
- (b) Analyze the additive of noise due to several sources. **10**

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Unit II

3. (a) What is DSB-SC modulation ? Draw the circuit diagram of balanced modulator using transistors and explain its operation. **10**
- (b) With neat diagram explain the phase shift method for SSB generation. State the advantages and disadvantages of this method. **10**
4. (a) With the help of a diagram, explain principle of envelope detection used for the demodulation of AM signals. Also derive the expression for the time constant of envelope detector. **10**
- (b) Explain with the help of wave forms modulation and demodulation of vestigial side band system. **10**

Unit III

5. (a) An FM carrier is sinusoidal modulated. Determine those values of modulation index for which all the power will lie in the sidebands. **10**
- (b) Describe the reactance modulation method of FM generation. How is frequency stability obtained in this method ? **10**

6. (a) With circuit diagram, explain the operation of the balanced slope detector, Plot the characteristics of the same. **10**
- (b) Explain the comparison between the following : **10**
- (i) FM and PM Signals
 - (ii) NBFM and WBFM Signals.

Unit IV

7. (a) Write short notes on the following : **10**
- (i) Frequency scintillation
 - (ii) Frequency drift.
- (b) What are the main requirements of an ideal privacy device ? Explain the principle of displaced speech-band privacy device used in radio communication. **10**
8. (a) With the block diagram, explain the working of a super heterodyne receiver and list their advantages. **10**
- (b) Explain the following : **10**
- (i) AFC
 - (ii) AGC.