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) Summerize 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**

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.

TOPPERWorld