Exam.Code:0905
Sub. Code: 6656

1079

B.E. (Information Technology) First Semester

IT-103: Basics of Electronics Communication

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) Why is modulation of signals necessary for their transmission?

b) How much power saving is obtained in the transmission of AM-SSB signals as compared to AM?

c) List two advantages of Digital Modulation.

d) Name two major types of noise in PCM.

e) What is the difference between PSK and DPSK? (5x2)

UNIT – I

II. a) Define Amplitude Modulation. A broadcast radio transmitter radiates 20kW when the modulation depth is 70%. How much of this is carrier power?

b) Explain the principle and working of. a Balanced Modulator. (5,5)

III. a) An FM wave is represented by the voltage equation: $v = 10 \sin (5x10^8t+5\sin 1250t)$. Find :-

i) Carrier frequency
ii) Modulating frequency
iii) The modulation index
iv) Maximum deviation in the FM wave
v) Power dissipated of the FM signal

b) What is the relationship between the Frequency and Phase Modulation Systems? (5,5)

IV. Write technical notes on:-

a) Super heterodyne Receiver

b) Detection of Phase Modulated Signal (5,5)

P.T.O.

UNIT – II

V. a) How are PWM signals demodulated?

b) For a PAM signal having maximum frequency 3kHz, sampling frequency 8kHz and pulse duration 0.1 Ts, calculate the transmission bandwidth. (5,5)

VI. a) Differentiate between coherent reception and non coherent detection of FSK signals.

b) How is ADM better than DM? (5,5)

VII. Explain in detail the principle of transmission and reception of FSK signals. How is error calculated in FSK signals? (10)

x-x-x