Exam.Code:0905
Sub. Code: 6656

1128

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) How much power saving is obtained in the transmission of AM-DSB signals?

b) A single tone modulating signal $y = \cos(15\pi\ 10^3 t)$ modulates a carrier of 10MHz and produces a frequency deviation of 75 kHz. Find the modulation index.

c) How is Digital Modulation better than Analog Modulation?

d) Define Companding.

e) What is the difference between BFSK and MSK? (5x2)

UNIT – I

II. a) Define Amplitude Modulation. A 500 W carrier is modulated to a depth of 70%. Calculate the total power in the modulated wave.

b) Explain the principle and working of a Super-heterodyne Radio Receiver. (5,5)

III. a) An FM wave is represented by the voltage equation:

$v = 10 \sin(10\pi \times 10^6 t + 25 \sin 2\pi \times 10^3 t)$. 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). Balanced Modulator

b) Comparison of Frequency Modulation Signal (5,5)

UNIT – II

V. a) How are PPM signals demodulated?

b) What are the limitations of Delta Modulation? How are they overcome? (5,5)

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

b) Explain the detection procedure of PAM signals (5,5)

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

x-x-x