B. Tech (EEE) 4th Semester F. SCHEME

Examination, May–2015

PRINCIPLE OF COMMUNICATION SYSTEM

Paper–EE–220–F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *Attempt five questions out of **9** questions. **Question No. 1 is compulsory** and **one** question from each of four sections.*

1. (a) Define unit impulse function and find its Fourier Transform.

(b) Compare narrow band FM with wide band FM

(c) Explain DPCM.

(d) Discuss various sources of noise. 5×4

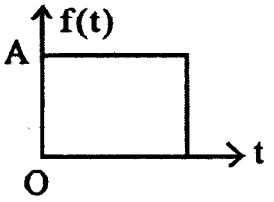
Section–A

2. (a) Classify various types of systems. 5

(b) Differentiate between multiplexing and demultiplexing. 5

(c) State and prove Scaling and Frequency shifting properties of Fourier Transform. 10

3. (a) Expand function f(t) shown in figure by trigonometric Fourier series over interval (0,1)



10

(b) Find Fourier Transform of following :

(i) Delta function

(ii) Signum function. 5,5

Section–B

4. (a) What is frequency modulation ? Derive expression for modulation index of FM waves. Also draw waveform for FM wave and its spectrum. 15

(b) Compare AM with FM. Also gives advantages of FM over AM. 5

5. (a) Explain indirect method of FM generation 10

(b) Give any one method of detection of DSBSC. 10

Section–C

6. (a) Obtain the relationship between signal to quantisation noise ratio and minimum band width in a binary PCM system. 10

(b) The required SNR in a PCM system is 30 dB. The power in the input signal is 100 mW and it requires from – 5 volts to + 5 volts. How many bits per sample must be transmitted ? 10

7. Compare the following :

(i) TDM and FDM

(ii) Pulse amplitude modulation and pulse time modulation. 10,10

Section–D

8. (a) Define PSK and OPSK. Draw and explain block diagram of OPSK transmitter. 15

(b) What is M-ary PSK ? Explain. 5

9. (a) The equivalent noise temperature of a parametric amplifier is 40°K. What is its noise figure if the ambient temperature is 27°C ? 8

(b) How noise figure of cascaded stages can be calculated. 12