

B.Tech. 4th Semester (EEE) F-Scheme Examination, May–2018

PRINCIPLES OF COMMUNICATION SYSTEM

Paper–EE–220–F

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

Note : *Attempt **five** questions in all, selecting **one** question from each section. **Question No. 1 is compulsory.***

1. (a) Write the Dirichlet's conditions for Fourier series. 4
   (b) Differentiate between even and odd signals. 4
   (c) Describe VSB. 4
   (d) What is aliasing and how it is reduced ? 4
   (e) What do you mean by M-ary PSK ? 4

Section–A

2. (a) Determine whether each of the following signals are periodic or not : 4
      (i) $x(t) = \sin 15 \pi t$
      (ii) $x(t) = \sin \sqrt{2}\ \pi t$
   (b) Define the following elementary signals : 12
      (i) Unit impulse signal
      (ii) Unit step signal
      (iii) Unit ramp signal.

   (c) How will you convert an analog signal into a digital signal ? 4

3. Make a difference between following :
   (a) Analog and digital communication 10
   (b) Energy and power signals 10

Section–B

4. (a) An AM broadcast radio transfer radiates 10 K watts of power if modulation percentage is 60. Calculate how much of this the carrier power is ? 4
   (b) Sketch and explain the working of ring modulator to generate a DSB-SC signal. 10
   (c) Make a difference between PM and FM. 6

5. (a) Explain the concept of instantaneous frequency, frequency deviation, modulation index and bandwidth in an FM system. 10
   (b) Explain the phase shift method of SSB generation. List its advantages and disadvantages with respect to the other methods. 10

Section–C

6. (a) Make a difference between FDM and TDM. 10

   (b) What is channel capacity ? Write in detail about channel capacity of a PCM system. 10

7. (a) Explain the generation of a PWM signal. 10

   (b) Give a complete description of differential pulse code modulation (DPCM). 10

Section–D

8. (a) Discuss a method for measurement of noise figure of a network. 10

   (b) Give a complete description of BPSK. 10

9. (a) What is internal noise ? Compare it with external noise. 10

   (b) Write short notes on : 10

   (i) PC-PC data communication.

   (ii) ASK.