Exam.Code:0935
Sub. Code: 6671

2063

B.E. (Electrical and Electronics Engineering)

Fifth Semester

PE-EE-504: Communication Systems

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 Part.

x-x-x

Q.No.1 (i) What are deterministic and random signals? Give examples.

(ii) Define random process and probability.

(iii) Define the granular noise in delta modulation systems.

(iv) What are digital modulation schemes? Mention its types.

(v) Differentiate between time division multiplexing and frequency divison multiplexing. (5 x2=10)

Part– A

Q.No. 2 (a) What is an AM system? What are its various types? With neat diagrams, explain any one type of AM system in detail.

(b) Define a system. What are the classifications of signals? (5, 5)

Q.No.3 (a) What is figure of merit? Calculate figure of merit for a DSB-SC system.

(b) Define the term 'noise'. What is Gaussian and white noise? Draw its characteristics. (6, 4)

Q. No.4 (a) Explain the difference between narrowband FM and wideband FM. Define the following terms for FM wave:

(i) Carrier swing (ii) Frequency deviation (iii) Percent modulation

(b) Calculate the frequency deviation and carrier swing of a frequency modulated wave, which was produced by modulating a 50.400 MHz carrier. The highest frequency reached by the FM wave is 50.406 MHz. Then calculate the lowest frequency reached by the FM wave.

(5, 5)

Part-B

Q.No.5 (a) What is meant by slope overload distortion in delta modulation system? How can it be avoided?

(b) What is a digital multiplexer? How it works? (5, 5)

Q.No.6 (a) What is a binary phase shift keying system? Derive the relation for error probability of binary phase shift keying system.

(b) What is meant by inter symbol interference? How does ISI occur in digital transmission?

(5, 5)

Q.No.7 (a) What do you mean by synchronization and carrier recovery for digital modulation?

(b) Explain the maximum likelihood sequence detection in digital communication. (5, 5)

x-x-x