Total No. of Questions :10] *[Total No. of Printed Pages :3*

Roll No .....

EC - 503 (NGS)

B.E. V Semester

Examination, December 2012

Digital Communication

(Non-Grading System Only)

Time : Three Hours

Maximum Marks : 70/100

Note: *1. Attempt one question from each unit.*
2. All questions carry equal marks.

Unit - I

1. a) Define the following with examples:
   i) Cumulative Distribution Function
   ii) Probability Density Function
   iii) Variance
   b) Write and explain the central-limit theorem.

Or

2. (a) Describe the Gaussian Distribution with distribution function.
   (b) What is meant by probability of error? Derive the expression for probability of error.

Unit - II

3. a) Discuss sampling theorem. Explain the generation of sampled signal and how the original signal is recovered from a sampled signal.

   b) What is Pulse Amplitude Modulation (PAM)? Draw and explain the circuit of PAM modulator.

Or

4. a) Discuss flat-top sampling. What is aperture effect and how it could be overcomed?

   b) What is time division multiplexing? Write short note on bandwidth requirements for TDM.

Unit - III

5. a) Explain quantization in detail. What is quantization error or quantization noise?

   b) Explain delta modulation with block diagram. What are its limitations and how are they overcome?

Or

6. a) What is compounding? Explain why compounding is needed? Discuss laws of compounding.

   b) Explain the working principle of adaptive delta modulation system. How it is different from delta modulation?

Unit - IV

7. a) What is meant by PSK? Draw and explain the block diagram of BPSK transmitter and receiver.

b) Discuss the properties of the matched filter. What is the need of using the same?

Or

8. a) Explain the generation and detection of ASK with necessary diagrams.

b) What is QAM? Explain the QAM transmitter and receiver with block diagram.

Unit - V

9. a) Explain spread spectrum modulation. How it can be used for communication purpose? Explain its advantages and disadvantages.

b) What is CDMA? How does it employ spread spectrum techniques during the multiple access of the signals?

Or

10. a) Explain direct sequence spread spectrum with block diagram of transmitter and receiver.

b) Write short note on 'acquisition and tracking of FH and DS signals.

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