Code: R7310406

R07

III B. Tech I Semester (R07) Supplementary Examinations, May 2012
DIGITAL COMMUNICATIONS
(Electronics & Communication Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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1   (a)   Prove that the mean value of the quantization error is inversely proportional to the square of the number of quantization levels.
     (b)   What are the problems encountered in uniform quantization. Explain in detail.

2   (a)   Explain the working of delta modulation system with a neat block diagram.
     (b)   Write the differences between granular noise and slope overload error.

3   Explain the design and analysis of M-ary signaling schemes. List the waveforms in quaternary schemes.

4   (a)   What is meant by ISI? And how it differs from cross talk in the PAM.
     (b)   What is the ideal solution to obtain zero ISI and what is the disadvantage of this solution?

5   (a)   A source emits one of four symbols during each signaling interval. The symbols occur with the probabilities of 0.4, 0.3, 0.2 and 0.1. Find the amount of information gained by observing the source emitting each of these symbols.
     (b)   Let X represents the outcome of a single roll of a fair die. What is the entropy of X?

6   (a)   Calculate the bandwidth limits of Shannon-Hartley theorem.
     (b)   What is an Ideal system? What kind of method is proposed by Shannon for an ideal system?

7   Write short notes on the following:
            (a) Vertical redundancy check.
            (b) Longitudinal redundancy check.

8   Draw the block diagram. Explain the operation of any convolution code.

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