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Question Paper Code : 21361

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Electronics and Communication Engineering

EC 2301/EC 51 — DIGITAL COMMUNICATION

(Regulation 2008)

(Common to PTEC 2301 — Digital Communication for B.E. (Part-Time) Fourth Semester Electronics and Communication Engineering Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. State the advantages and disadvantage of digital communication systems over analog communication systems.

2. State the classification of channels.

3. State any two non-uniform quantisation rules.

4. What is natural sampling?

5. State the significance of minimum distance of a block code.

6. Define transparency of a line code. Give two examples of line codes which are not transparent.

7. 'ISI can not be avoided'. Justify the statement.

8. State the principle of maximum likelihood detectors.

9. What is QAM?

10. What are coherent and non-coherent receivers?

PART B — (5 × 16 = 80 marks)

11. (a) Explain any one analog pulse communication system.

Or

(b) Discuss the characteristics of various discrete communication channels.

12. (a) (i) Explain a PCM system. Derive the expression for quantisation noise of a PCM system with uniform quantizer.

(ii) Compare any two speech encoding techniques.

Or

(b) Explain a

(i) Spectral waveform encoding.

(ii) Model based encoding.

13. (a) Explain Viterbi algorithm to decode a convolutionally coded message.

Or

(b) Derive and draw the power spectra of a NRZ,

(i) Polar coded waveform

(ii) Bipolar coded waveform

14. (a) Derive the expression for bit error probability of a binary signal detected with a matched filter.

Or

(b) Derive and Explain the Nyquist first criterion to minimize ISI.

15. (a) Derive the expression for bit error probability of a QPSK system.

Or

(b) Derive the expressions for bit error probability of a

(i) Coherent ASK system.

(ii) non-coherent FSK system.

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