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B.E./B.Tech. DEGREE EXAMINATIONS, MAY/JUNE 2010.

SIXTH SEMESTER

ELECTRONICS AND COMMUNICATION ENGINEERING

EC 1351 — DIGITAL COMMUNICATION

(REGULATIONS 2007)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

14. (a) Discuss on cyclic code and the codeword generation in a cyclic code with a suitable example.
Or
- (b) Explain the convolutional coding and decoding with a neat block diagram.
15. (a) (i) What is DSSS? Explain the DSSS coherent BPSK scheme with neat block diagram. (12)
(ii) Derive the jamming margin provided by this scheme. (4)
- Or
- (b) (i) List the properties of PN sequence. (8)
(ii) Explain the generation of Maximum length sequence using feedback shift register. (8)

1. A signal contains 1 kHz and 2 kHz components. Then find out the Nyquist rate to sample the signal. *(X)*

2. What is demerit of delta modulation? How is it solved using adaptive delta modulation? *M*

3. What is ISI? What is the cause for it?

4. What is the need for equalization in communication systems?

5. Draw the signal space diagram for QPSK and 8-ary PSK signals.

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6. What is carrier synchronisation?
 7. What is discrete memoryless channel?
 8. What is syndrome in error control codes? Specify its use.
 9. Differentiate the pseudo-noise from noise.
 10. What is FHSS?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw the unipolar NRZ and Manchester coded waveforms for the binary data [01001011]. (4)
- (ii) Compare bandwidths of the unipolar NRZ and Manchester coded signals. (4)
- (iii) With a neat block diagram explain the coding of speech signal using PCM. (8)

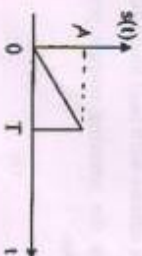
Or

- (b) Discuss about the coding of speech signal using delta modulation and extend the discussion over the noise associated with the coding and the minimizing conditions.

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12. (a) (i) What is the principle and application of matched filter? (4)
- (ii) Derive the impulse of the matched filter. (10)
- (iii) Draw the matched filters impulse response while the filter is matched to the input signal shown below. (2)



Or

- (b) (i) Discuss on M-ary PAM transmission (8)
- (ii) Draw the model of an Eye diagram and specify the importance observations and discuss them. (8)
13. (a) (i) Draw the constellation diagram for BPSK. BFSK. (4)
- (ii) Explain the generation and detection of BPSK signals and derive its BER. (12)

Or

- (b) Discuss on the generation, detection and BER calculation of QPSK signaling.

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