B 2269

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Third Semester

Information Technology

IF 244 — PRINCIPLES OF COMMUNICATION

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Rayleigh's Energy theorem.

2. What is meant by ensemble and sample function?

3. What is the main difference between Continuous Wave (CW) modulation and Pulse Modulation (PM)?

4. Write the modulation index for frequency modulation (FM) and Phase Modulation (PM).

5. Draw the structure of Adaptive Delta Modulation (ADM) transmitter.

6. What is meant by (ISI) inter symbol interference?

7. What is meant by antipodal signal, give one example?

8. Draw the Amplitude Shift Keying (ASK) waveform of following binary data.

   11011001

9. What is meant by spread spectrum?

10. Draw the structure of DSS transmitter system.

PART B — (5 × 16 = 80 marks)

11. (a) Explain in details about sampling function of analog signal and power spectral density.

Or

(b) Write short notes on :

(i) Parseval's Theorem. (8)

(ii) Mean and variance of the sum of random variables. (8)

12. (a) With suitable block diagram describe the method of generating an SSB (Single Side Band) Signal. (16)

Or

(b) (i) What is meant by frequency multiplication? (4)

(ii) Explain in details about stereophonic FM broad casting using suitable block diagram. (12)

13. (a) (i) Derive output signal to noise ratio in pulse code modulation. (6)

(ii) Describe with suitable block diagram explain in details about delta modulation and quantization noise in delta modulation. (10)

Or

(b) Explain in details about the matched filter and the probability of error of the matched filter. (16)

14. (a) Explain in details about binary encoding/decoding with suitable block diagram. (16)

Or

(b) Explain in details about calculation of error probability for BPSK and BFSK. (16)

15. (a) Explain in details about direct sequence spread spectrum transmitter and receiver. (16)

Or

(b) Explain in details about frequency hopping spread spectrum transmitter and receiver. (16)

Time :

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