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Question Paper Code : 53098

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2010

Third Semester

Computer Science and Engineering

CS 2204 — ANALOG AND DIGITAL COMMUNICATION

(Regulation 2008)

Time : Three hours
Maximum : 100 Marks

Answer ALL questions

PART A — (10 × 2 = 20 Marks)

1. For an AM DSBFC modulator with a carrier frequency of 100KHz and maximum modulating signal frequency of 5 KHz, determine upper and lower side band frequency and the bandwidth.

2. State Carson's rule.

3. Define information capacity.

4. What is the relation between bit rate and baud for a FSK system?

5. What are the advantages of digital transmission?

6. Define companding.

7. What is data terminal equipment? Give examples.

8. What is forward error correction?

9. What is frequency hopping?

10. What is meant by an orthogonal code?

PART B — (5 × 16 = 80 Marks)

11. (a) (i) Derive the expression for a Amplitude Modulated wave and draw its spectrum. (10)

    (ii) Obtain a relationship between carrier and side band powers in an AM DSBFC wave and explain how power distribution takes place in AM DSB FC system. (6)

Or

    (b) (i) Define modulation index for FM and PM and obtain the relation between modulation index and modulating signal for FM and PM. (8)

    (ii) Compare the advantages and disadvantages of angle modulation with amplitude modulation. (8)

12. (a) (i) Describe with neat diagram, the operation of a QPSK modulator. Draw its phasor and constellation diagram. (10)

    (ii) Explain the bandwidth considerations of QPSK system. (6)

Or

    (b) What is carrier recovery? Discuss how carrier recovery is achieved by the squaring loop and Costas loop circuits. (16)

13. (a) (i) Draw the block diagram of a PCM transmitter and explain the function of each block. (6)

    (ii) What are the types of sampling? Explain the operation of the sample and hold circuit. (10)

Or

    (b) Draw the block diagram and describe the operation of a delta modulator. What are its advantages and disadvantages compared to a PCM system? (16)

14. (a) (i) Describe the features and purposes of serial Interfaces. (6)

    (ii) Describe the mechanical, electrical and functional characteristics of Rs. 232 interface. (10)

Or

    (b) Explain how vertical, longitudinal and cyclic redundancy checking is used for detecting the occurrence of errors in data transmission. (16)

15. (a) (i) What is a PN sequence? Explain its important properties. (8)

    (ii) Describe with block diagram, DS SS binary PSK spread spectrum system. (8)

Or

    (b) (i) Describe the operation of a CDMA multiplexing system. (10)

    (ii) List the advantages of CDMA over TDMA multiple access scheme. (6)

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