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A.L. 16 FN

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Question Paper Code : 95396

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Fourth Semester

Software Engineering

XCS 244/10677 SW 404 — PRINCIPLES OF DATA COMMUNICATION

(Common to 5 Year M.Sc. Information Technology and M.Sc. Computer Technology)

(Regulations 2003/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the need for modulation?
2. Define sampling.
3. Define information rate.
4. Name some of the commonly used algebraic codes.
5. What are the most significant transmission impairments?
6. Define noise.
7. Define frequency deviation, modulation index for FSK modulation.
8. What is the difference between adaptive delta modulation and conventional delta modulation?
9. Define modulation.
10. What is multiplexing?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the basic concepts of AM and FM modulation with neat block diagrams. (8)
- (ii) Explain the concepts of pulse amplitude modulation and demodulation. (8)

Or

- (b) Explain sampling, quantisation and quantisation error with example. (16)

12. (a) (i) Explain the use of orthogonal signals to attain Shannon's limit. (8)
(ii) What are the reasons for burst errors? Discuss any one technique to overcome burst error? (8)

Or

- (b) Explain the decoding and convolution codes. (16)

13. (a) Explain the following:

- (i) Data rate and bandwidth.
(ii) Periodic signal and discrete signal. (16)

Or

- (b) (i) Explain a full-duplex and half duplex transmission with an example. (8)

- (ii) Describe the different transmission media. (8)

14. (a) (i) With the help of necessary diagram, explain the principles of delta modulation. (10)

- (ii) What is Inter Symbol Interference (ISI) and what are the primary causes of ISI? (6)

Or

- (b) Explain FSK modulation and demodulation with necessary block diagrams. (16)

15. (a) Discuss the concept of flow control. (16)

Or

- (b) Explain the following:

- (i) Multiplexing. (8)

- (ii) HDLC. (8)