

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Fifth Semester

Computer Science Engineering

EC 351 — ANALOG, DIGITAL AND DATA COMMUNICATION

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is Pulse Amplitude Modulation?
2. State sampling theorem.
3. State Shannon's channel capacity theorem.
4. What is meant by block code?
5. What is meant by thermal noise?
6. What is duplex operation?
7. What is biphase format?
8. What are the two types of noise in delta modulation?
9. What is meant by multiplexing?
10. What is meant by flow control?

PART B — (5 × 16 = 80 marks)

11. (i) Explain FDM system with neat block diagram. (8)
- (ii) Write short note on selective-reject error control strategy. (8)

12. (a) (i) Compare AM with FM. (6)  
(ii) Explain the method of generating frequency modulated signal with neat block diagram. (10)

Or

- (b) (i) Explain the principle of sampling and quantization in digital communication. (10)  
(ii) Explain the method of generation of PWM signal. (6)
13. (a) (i) Define entropy  $H(X)$  for a discrete random variable  $X$ . State and prove properties of discrete entropy  $H(X)$ . (10)  
(ii) Find the channel capacity of a binary symmetric channel with error probability 0.25. (6)

Or

- (b) (i) Explain in detail about burst error correction codes. (8)  
(ii) Explain about orthogonal signals and its representations. Also explain their uses. (8)
14. (a) (i) Draw the block diagram of FSK system and explain. (10)  
(ii) Compare BPSK and QPSK. (6)

Or

- (b) (i) Draw the block diagram of pulse code modulation system and explain. (10)  
(ii) Explain the principle of delta modulation. (6)
15. (a) (i) What is the need for flow control? (3)  
(ii) Explain the methods of flow control techniques. (13)

Or

- (b) (i) Explain the Error detection and Correction methods used in Data Link Control. (12)  
(ii) Explain HDLC. (4)