Z 6348

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Elective

Power Electronics and Drives

PE 1622 — COMPUTER COMMUNICATION AND NETWORKS

(Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define a communication subnet? What is its function?

2. Differentiate circuit switched and packet switched networks.

3. What is carrier sense multiple access?

4. What is meant by piggy backing of frames?

5. Distinguish between adaptive and non adaptive routing algorithms.

6. What are choke packets used for?

7. In an M/M/1 queueing system with 100 customers, arrival occurs at the mean rate of 25 customers per sec. Determine the mean delay suffered by a customer in the system.

8. What is priority queueing?

9. List the five basic functions of the E–mail system.

10. What are virtual terminals?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are metropolitan area networks? Explain. (7)

(ii) Determine the signal to noise ratio of a noisy channel with bandwidth 2 kHz and maximum data rate of 20 kbps. (3)

(iii) Distinguish between baseband and broadband transmission. (6)

Or

(b) (i) List the principles of layering and give the functions of each layer in the OSI reference model. (10)

(ii) What are fiber optic networks? What are their advantages? (6)

12. (a) (i) Compare pure ALOHA and slotted ALOHA in terms of their performance. (8)

(ii) Explain in detail the CSMA/CD protocol used in Ethernet LANs. (8)

Or

(b) (i) Describe the various framing techniques implemented in the data link layer. (6)

(ii) What is sliding window? Explain the sliding window protocol with Go–Back–N. (10)

13. (a) (i) What is link state routing? Explain. (8)

(ii) Describe the leaky bucket algorithm. What is its application? (8)

Or

(b) (i) How are connection establishment and release done in the transport layer? (9)

(ii) Define the parameters that provide transport layer QoS. (7)

14. (a) (i) Derive the expression for the mean waiting time in an M/M/1 queue from basic principles. (10)

(ii) What is the importance of priority queueing capacity assignment in distributed networks? (6)

Or

(b) (i) What is an M/G/1 queue? Give the expression for the mean waiting time of a customer in an M/G/1 queueing system. (7)

(ii) Explain the concept of concentration and buffering for infinite and finite buffers. (9)

15. (a) (i) Elaborate the concept of public key cryptography. (7)

(ii) What are the design issues to be considered in implementing a remote procedure call? Explain. (9)

Or

(b) Explain any two data compression techniques in detail, with case study. (16)
