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(July)

COMPUTER SCIENCE

(Elective/Honours)

(Data Communication and Computer Networks)

(CS–401T)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **one** question from each Unit

UNIT—I

1. (a) With a neat diagram, depict and label the ISO/OSI reference model. Also, write a short note on any two layers of this model. 2+3+3=8

   (b) With the help of an example, explain the difference between the sliding window protocols—go back N and selective repeat protocols. 5+5=10

2. (a) Explain the different layers and their functionalities in the TCP/IP reference model. 8

   (b) Discuss two framing methods in data link layer. 3+3=6

   (c) Write a short note on connection oriented service. 4

UNIT—II

3. (a) Discuss the token bucket algorithm for traffic shaping. 5

   (b) With a suitable example, work out the distance vector routing algorithm. 2+8=10

4. (a) What is the purpose of subnetting? 3

   (b) Define the flooding routing algorithm. Discuss its merits and demerits. 3+4=7

   (c) List out the steps involved in link state routing algorithm. 5

UNIT—III

5. (a) In transport layer, what are the strategies used by the sender and the receiver to ensure crash recovery. 6

   (b) With the help of a suitable diagram, explain the remote procedure call (RPC). Discuss any two problems faced by RPC. 1+5+2=8

6. *(a)* Define the following terms : 2×2=4

    (i) Jitter

    (ii) Socket

  (b) With the help of diagrams, explain TCP connection establishment. 5

  (c) Describe the Silly Window Syndrome in the transmission control protocol (TCP). 5

UNIT—IV

7. *(a)* Describe the working of domain name system (DNS). Further, discuss five different principal DNS resource record types. 5+5=10

  (b) Write a short note on the file transfer protocol (FTP). 4

8. *(a)* Write short notes on the following : 5×2=10

    (i) TELNET

    (ii) HTTP

  (b) Why do we need POP3 or IMAP for electronic mail? 4

UNIT—V

9. *(a)* How did the Internet evolve? 4

  (b) Explain the general server characteristics. 10

10. *(a)* Write short notes on the following : 5×2=10

    (i) WWW

    (ii) URL

  (b) Differentiate between apache and Internet information services (IIS). 4

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