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(April)

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 **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Explain OSI reference model with the help of a suitable diagram. 6

   (b) Differentiate between connection-oriented and connectionless services. 4

   (c) What is sliding window protocol? With the help of a diagram, explain Go Back N protocol. 2+6=8

2. *(a)* What are the problems associated with WLANs? 4

(b) Differentiate between simplex, half-duplex and full-duplex modes of data transmission. 6

(c) Explain how hamming distance is used to correct errors of transmission in the data link layer. 4

(d) With a suitable diagram, explain the protocol using selective repeat. 4

UNIT—II

3. *(a)* Describe the following : 3×2=6
  (i) Virtual circuits
  (ii) Datagram subnet

(b) Differentiate between adaptive and non-adaptive routing algorithms. 5

(c) Explain flooding. 4

4. *(a)* Explain the working of distance vector routing. What problem does it suffer from? 3+2=5

(b) What is Jitter? How can it be controlled? 4

(c) Compare and contrast between Leaky Bucket Algorithm and Token Bucket Algorithm. 6

UNIT—III

5. *(a)* Explain how flow control is achieved in the transport layer. 5

(b) Discuss TCP connection establishment with the help of a diagram. 5

(c) What is two army problem? How is this problem related with connection release? 4

6. *(a)* Differentiate between TCP protocol and UDP protocol. 4

(b) Explain remote procedure call in UDP. 5

(c) Explain the role of multiplexing in the transport layer. 5

UNIT—IV

7. *(a)* Explain the working of DNS. 8

(b) Describe the following : 3×2=6
  (i) SMTP
  (ii) POP3

8. *(a)* What is electronic mail? Describe its different services.   3+5=8

    (b) Describe the following :   3×2=6

      (i) FTP

      (ii) HTTP

UNIT—V

9. *(a)* What is a URL? Explain its format.   2+5=7

    (b) What is a Web server? What are the characteristics of a general server?   2+5=7

10. *(a)* What is W3C? Explain its purpose and recommendations.   4+4=8

    (b) Describe the following :   3×2=6

      (i) Apache

      (ii) Internet Information Server

(Internal—25)

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