

4/EH-73 (iv) (Syllabus-2015)

2019

( 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 **one** question from each Unit

UNIT—I

1. (a) Compare and contrast between the two well-known reference models—OSI and TCP/IP. 6
- (b) Differentiate between radio and microwave transmissions. 6
- (c) Explain the processes of bit stuffing and unstuffing that would take place from the sender's and the receiver's ends respectively, when bit-oriented framing method is used for the data pattern 00011111100111101000. 6

( Turn Over )

- 2. (a) Write a short note on wireless LAN 802.11. 4
- (b) With the help of a figure, illustrate the hybrid topology. 1+3=4
- (c) How does a signal propagate in a fiber-optic cable? 4
- (d) What is the remainder obtained by dividing  $x^7 + x^5 + 1$  by the generator polynomial  $x^3 + 1$ ? 6

UNIT—II

- 3. (a) Define store-and-forward packet switching. 3
- (b) Explain any one of the following : 7
  - (i) Distance Vector Routing Algorithm
  - (ii) Routing in Ad Hoc Networks
- (c) With the help of a suitable example, illustrate the concept of subnetting of a network. 5
- 4. (a) What are the different strategies to control congestion in Virtual Circuit Subnets? 5
- (b) Explain any one of the following : 7
  - (i) Link State Routing
  - (ii) Hierarchical Routing
- (c) How is Leaky Bucket Algorithm different from Token Bucket Algorithm? 3

UNIT—III

- 5. (a) Compare and contrast between Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). 8
- (b) Explain the flow control and buffering elements of Transport Protocols. 3+3=6
- 6. (a) With the help of a figure, explain the Remote Procedure Call Protocol. 2+5=7
- (b) Explain the well-known three-way handshake connection establishment technique. 7

UNIT—IV

- 7. (a) Write short notes on : 5+5=10
  - (i) POP3
  - (ii) IMAP
- (b) Discuss the working of HTTP. 4
- 8. (a) Write short notes on : 4+4=8
  - (i) SMTP
  - (ii) FTP
- (b) Explain the architecture of e-mail system. 6

UNIT—V

9. (a) Differentiate between Web browser and Web server.

7

(b) With the help of suitable examples, explain the Uniform Resource Locator (URL) formats.

3+4=7

10. Write short notes on :

7+7=14

(a) General Server Characteristics

(b) W3C Recommendations

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