2023
B.A./B.Sc.
Third Semester
CORE – 7
COMPUTER SCIENCE
Course Code: CSC 3.31
(Computer Networks)

Total Mark: 70 *Pass Mark: 28*
Time: 3 hours

Answer five *questions, taking* one *from each unit.*

UNIT–I

1. (a) Define computer network. Write four applications of computer network. 1+4=5
   (b) Explain the classification of computer network based on area covered. 9

2. (a) What is a network topology? List and explain any two network topologies. 1+6=7
   (b) What are network models? Compare the OSI model with the TCP/IP model. 1+6=7

UNIT–II

3. (a) Define data communication. What are the characteristics of data communication? 1+3=4
   (b) Differentiate between analog and digital signals. 4
   (c) What is the purpose of using multiplexing technique? Explain frequency-division multiplexing. What are the strategies used to deal with mismatch data rates? 1+2+3=6

4. (a) What are switching techniques? Explain the three typical switching techniques available for digital traffic. 1+6=7
   (b) Define transmission media. Explain the different types of transmission media. 1+6=7

UNIT–III

5. (a) What is digital subscriber line (DSL)? What are its features? 1+4=5
   (b) Write down the uses of computer network for home application and mobile users. 4
   (c) Briefly explain the following given below: 1×5=5
   (i) Switch (ii) Bridge
   (iii) Gateway (iv) Router
   (v) Firewall

6. (a) What is a dial-up modem? With the help of a diagram explain the function of a modem in dial-up modem. 1+4=5
   (b) What is ethernet LAN? Explain any one type of ethernet LAN. 1+3=4
   (c) Explain the term IP addressing. Change the following IP addresses from binary to dotted-decimal notation: 1+4=5
   (i) 01111111 11110000 01100111 11111001
   (ii) 10101111 11000111 11111000 00011101
   (iii) 11011111 10110000 00011111 01011101
   (iv) 11100000 11110111 11000111 01111101

UNIT–IV

7. (a) What is the transport layer? Write five differences between TCP and UDP. 1+5=6
   (b) With the help of a diagram, explain the three-way handshake process of connection establishment in the transport layer. 8

8. (a) Write four functions of the application layer. Explain any two protocols used in the application layer. 4+6=10
   (b) Why is DNS important? Explain the working of DNS. 1+3=4

UNIT–V

9. (a) What is HTTP? With the help of a diagram, explain the basic architecture of HTTP. 1+7=8
   (b) What is WWW? How does it work? What are the three components of WWW? 1+2+3=6

10. (a) Define email. What are the advantages and disadvantages of using email? 1+5=6

(b) What is URL? Explain the various components of URL. 1+7=8