R–11992

Register No. | | | | | | | | |

BTech Degree Examination November 2017

Fifth Semester

Information Technology

14ITT51 – COMPUTER COMMUNICATION NETWORKS

(Regulations 2014)

Common to BE Computer Science and Engineering

Time: Three hours Maximum: 100 marks

Answer all Questions

Part – A (10 × 2 = 20 marks)

1. Consider a fully connected mesh network with n nodes. How many physical links and input-output ports are required for a full duplex mode communication? [CO1,K3]
2. Compare circuit-switched and packet-switched networks. [CO1,K2]
3. Identify the relationship between a switch and a bridge. [CO2,K3]
4. How do routers determine that an incoming IP packet is to be multicast? [CO2,K2]
5. Find the class of the following classful IP addresses: [CO4,K3]

   a) 130.35.54.12 b) 245.24.2.8
6. Routing information protocol uses UDP instead of TCP. Justify. [CO3,K1]
7. How fault tolerance is achieved by stream control transmission protocol? [CO3,K1]
8. Identify the use of checksum in stop-and-wait protocol. [CO5,K3]
9. List the four techniques used to improve the QoS. [CO4,K1]
10. Compare SMI and MIB in SNMP. [CO5,K2]

Part – B (5 × 13 = 65 marks)

11. a. i) With a neat diagram, explain the layered architecture of TCP/IP protocol suite. (8) [CO3,K1]

    ii) Compare the layers of TCP/IP protocol suite and OSI model. (5) [CO3,K2]

(OR)

b. i) Draw the signal waveforms when 00110101 is transmitted using the NRZ, RZ and Manchester codes. (6) [CO1,K3]

   ii) Compare the performance characteristics of guided medias. (7) [CO1,K2]

12. a. Given the dataword 101001111 and the divisor 10111, show the generation of CRC code word at the sender site. Also show how the corrupted data is identified in the receiver site. (13) [CO1,K3]

(OR)

b. Differentiate and elaborate among random access MAC protocols CSMA, CSMA/CD & CSMA/CA. (13) [CO3,K2]

13. a. i) Draw the format of IPv4 diagram. Explain the fields of it. (6) [CO3,K1]

ii) Give the general format of ICMP messages. Explain the two types of ICMP messages. (7) [CO3,K1]

(OR)

b. i) Illustrate the five types of link-state advertisement techniques used in open shortest path first routing protocol. (7) [CO4,K1]

ii) Summarize the parameters used for measuring the performance of a network. (6) [CO4,K2]

14. a. i) Explain the IPv6 protocol with its formats of datagram and payload. (7) [CO4,K1]

ii) Compare and contrast the Go-Back-NARQ protocol with Selective-Repeat ARQ. (6) [CO4,K2]

(OR)

b. Discuss about the three way handshake protocol for connection establishment and termination in TCP. (13) [CO4,K2]

15. a. Elaborate on the flow control mechanisms available to improve the QoS. (13) [CO5,K1]

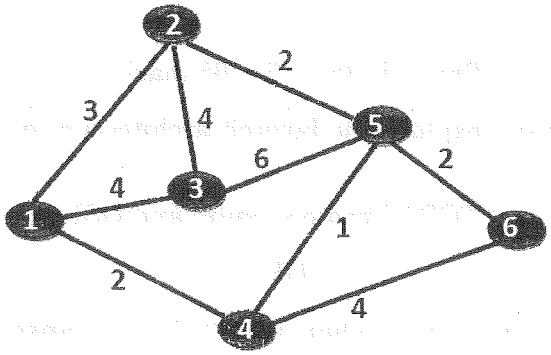
(OR)

b. i) Draw and explain the header format for MIME. (7) [CO5,K1]

ii) Explain the eight types of PDUs in SNMP with its format specifications. (6) [CO5,K1]

Part – C (1 × 15 = 15 marks)

16. a. i) Give the pseudo code for Dijkstra's algorithm and apply it to find the shortest path tree and the forwarding table for node 1 for the following network scenario. (12) [CO3,K3]



ii) Analyse the need for DNS in TCP/IP. (3) [CO3,K4]

(OR)

b. i) What is a silly window syndrome? Explain the solutions exist to handle this problem at the sending side and at the receiving end. (7) [CO3,K3]

ii) Differentiate between nonpersistent and persistent HTTP connections. (8) [CO3,K2]

Bloom's Taxonomy Level	Remembering (K1)	Understanding (K2)	Applying (K3)	Analysing (K4)	Evaluating (K5)	Creating (K6)
Percentage	40.5	32.2	25.5	1.6	-	-