Sixth Semester B.E. Degree Examination, Jan./Feb. 2021
Computer Networks - II

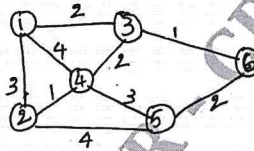Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. What are Datagram and Virtual circuits? Distinguish between them. **(10 Marks)**
   b. Consider the network given below in Q1(b). Use Bellman – Ford algorithm to find shortest paths from all nodes to destination node 6. **(10 Marks)**

Fig. Q1(b)

2 a. Explain Fair queuing at the packet level. Show the transmission sequences for fluid - flow and packet – by – packet system by considering the two logical buffers (buffer1, buffer2). Assume each has a single L – bit packet to transmit at $t = 0$ and no sub-sequent packets arrive. Assume $C = L$ bits / second = 1 packet/second. **(10 Marks)**
   b. What is Traffic Shaping? Explain Leaky – bucket traffic shaper and Token – bucket traffic shaper. Also write an algorithm for Leaky – bucket. **(10 Marks)**

3 a. List and explain the changes from IPV_4 to IPV_6. Also write the IPV6 basic header format and describe its fields. **(10 Marks)**
   b. Explain the IP address classification identify the following IP addresses and their address class : 200.58.20.165   128.167.23.20   16.196.128.50   150.156.10.10. **(10 Marks)**

4 a. Explain the OSPF protocol and its operation. **(10 Marks)**
   b. Explain the TCP state transition diagram. **(10 Marks)**

PART – B

5 a. List the PDUs of $SNMPv_2$. Also explain the SNMP PDU format. **(10 Marks)**
   b. Write RSA algorithm for an RSA encryption of a 4 – bit message of 1001 or $m = 9$. Find the public and the private keys and also show the cipher text. Choose $a = 3$, $b = 11$. **(10 Marks)**

6 a. What are the common categories of processes providing QoS? **(04 Marks)**
   b. Explain the operation of weighted fair queuing scheduler in context with packet scheduling of integrated service. **(06 Marks)**
   c. What is a Virtual Private Network? What are the benefits of deploying a VPN? Also discuss the concept of point – to – point protocol in context with VPN. **(10 Marks)**

7 a. Write an algorithm for Huffman encoding technique. Design a Huffman encoder for a source generating {a_1 , a_2 , a_3 , a_4 , a_5} and with probabilities {0.2 , 0.4 , 0.2 , 0.1 , 0.1}. **(10 Marks)**
   b. Explain the structure of streaming packets used in Stream Control Transmission Protocol (SCTP). **(10 Marks)**

8 a. List and explain the criteria for a secure routing protocol. **(10 Marks)**
   b. With the help of diagram, briefly explain direct and multihop routing of intra cluster routing protocol. **(06 Marks)**
   c. Write a short note on Zigbee technology. **(04 Marks)**

*****