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10CS/IS64

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

Time: 3 hrs.

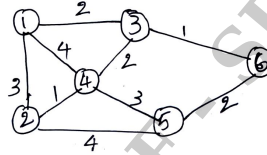
Max. Marks: 100

**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  $C = L\text{bits} / \text{second} = 1 \text{ packet/second}$ . (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<sub>4</sub> to IPV<sub>6</sub>. Also write the IPV<sub>6</sub> 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<sub>2</sub>. 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)

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