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10CS/IS64

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

Time: 3 hrs. Max. Marks:100

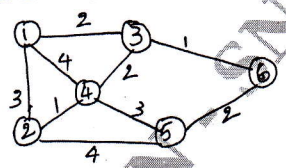
Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

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 = Lbits / 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)**