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10CS/IS64

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

Time: 3 hrs.

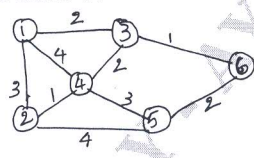
Max. Marks:100

**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 IPV4 to IPV6. 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 SNMPv2. 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<sub>1</sub> , a<sub>2</sub> , a<sub>3</sub> , a<sub>4</sub> , a<sub>5</sub>} 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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.