## Sixth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
## Computer Networks – II

Time: 3 hrs.    Max. Marks:100

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

### PART – A

1  a. Differentiate between virtual circuit and datagram. (06 Marks)
   b. Find shortest path tree from node 5 to all nodes and also find the associated routing table entries for node 5 using Dijkstra's algorithm. (08 Marks)
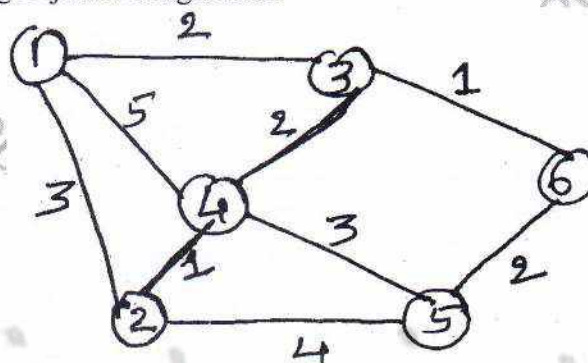


Fig. Q1(b)

   c. Suppose we wish to transmit a large message ($L = 10^6$) over three hops. Now suppose that transmission line in each hop has an error rate of $P = 10^{-6}$ and each hop does error checking and retransmission :
      i) How many bits need to be transmitted using message switching?
      ii) Now suppose the same above message is broken up into ten $10^5$ bit packets, how many bits need to be transmitted over the three hops? (06 Marks)

2  a. Explain Fair queuing mechanism of traffic management at packet level and also compute the expression for finish time in packet by packet fair queuing. (07 Marks)
   b. Explain the leaky bucket algorithm used for policing. (06 Marks)
   c. Suppose that ATM cells arrive at a leaky bucket policer at times t = 1, 2, 3, 5, 6, 8 11, 12, 13, 15 and 19. Assume I = 4 and L = 4. Plot the bucket content and identify any nonconforming cells. (07 Marks)

3  a. Explain the IP address classification. Identify the following IP address to which class they belong to : i) 200·58·20·165    ii) 128·167·23·20
      iii) 16·196·128·50    iv) 150·156·10·10. (07 Marks)
   b. A host in an organization has an IP address 150·32·64·34 and subnet mask 255·255·254·0. What is the address of this subnet? What is the range of IP address that a host can have on this subnet? (07 Marks)
   c. Write a note on user datagram protocol(UDP). (06 Marks)

4  a. Provide a structure of OSPF common header and write a note on OSPF operation. (08 Marks)
   b. Write a note on internet group management protocol. (06 Marks)
   c. What do you mean by mobile IP? Explain mobile IP routing operation. (06 Marks)

## PART – B

5  a. What do you mean by remote login and also explain secure shell(SSH) protocol. **(06 Marks)**
   b. What are the elements of network security? Explain the threats to network security.
   **(06 Marks)**
   c. Explain RSA algorithm. Using RSA algorithm encrypt a message m = 9. Assume a = 3 and b = 11. Find public and private keys and also show the ciphertext. **(08 Marks)**

6  a. What do you mean by VPN? Explain its types. **(07 Marks)**
   b. Write a note on MPLS operation. **(07 Marks)**
   c. Write a note on overlay networks. **(06 Marks)**

7  a. Write a note on overview of information process and compression in multimedia networks.
   **(04 Marks)**
   b. Briefly explain various compression methods without loss. **(12 Marks)**
   c. Explain voice over IP system. **(04 Marks)**

8  a. Briefly explain the classification routing protocols in wireless Ad-hoC networks. **(06 Marks)**
   b. List the security issues in Ad – hoC networks. Explain types of attacks. **(07 Marks)**
   c. Differentiate between inter cluster and intra cluster routing protocols in WSN. **(07 Marks)**

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