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)**
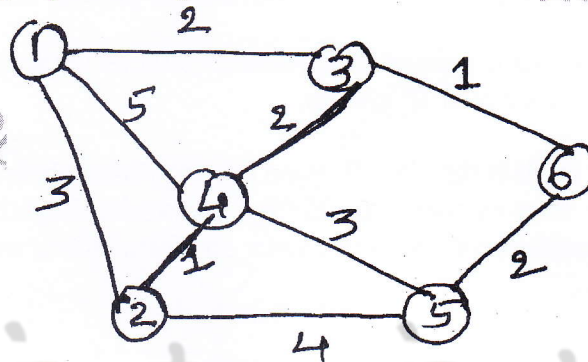

Fig. Q1(b)

     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) $200 \cdot 58 \cdot 20 \cdot 165$ ii) $128 \cdot 167 \cdot 23 \cdot 20$
             iii) $16 \cdot 196 \cdot 128 \cdot 50$ iv) $150 \cdot 156 \cdot 10 \cdot 10$.   **(07 Marks)**
     b. A host in an organization has an IP address $150 \cdot 32 \cdot 64 \cdot 34$ and subnet mask $255 \cdot 255 \cdot 254 \cdot 0$. 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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