Daffodil International University

Department of Computer Science and Engineering
Faculty of Science and Information Technology
Final Examination, Semester: FALL 2019

Course Code: CSE 313 (Day)   Course Title: Computer Network

Total Marks: 40   Time: 2 Hours
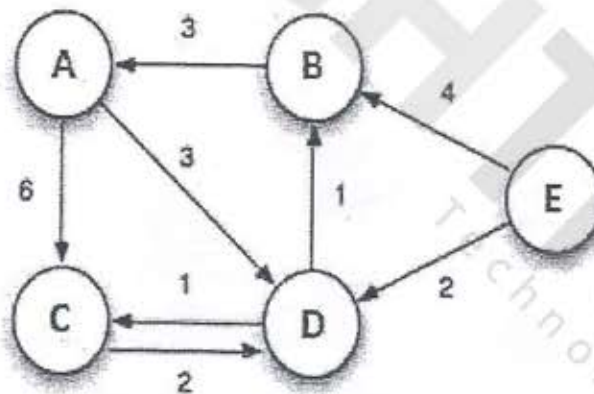Answer all of the following questions. Figures in the right-hand margin indicate full marks.

[1] a) "Daffodil Computers" has granted the block 15.13.180.0/8. The administrator **5**
         wants to create 32 subnets. Do not consider "0" as first subnet.
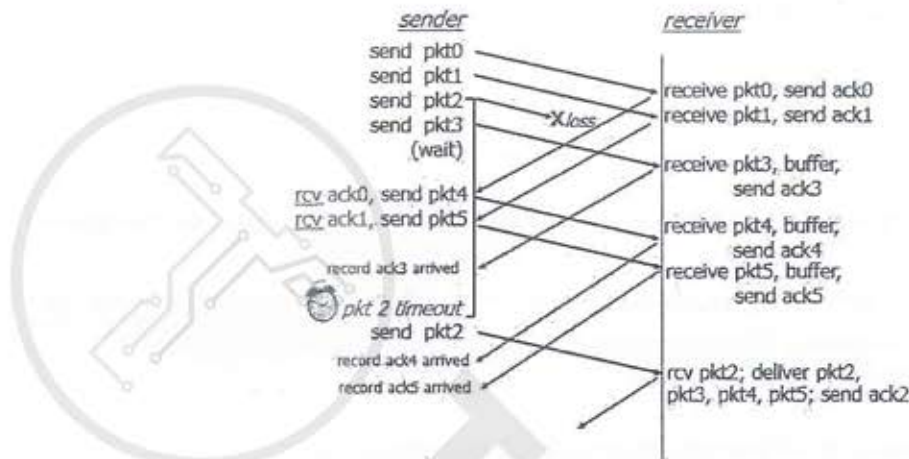
    I.   Find the custom subnet mask
    II.   Find the number of host addresses in each subnet
    III.   Find the first and last host addresses of subnet 20
    IV.   Find the Network and Broadcast address of subnet 10.

    b) Consider the following diagram. With the indicated link costs, use Dijkstra's **5**
        shortest path algorithm to compute the shortest path from A node to all network
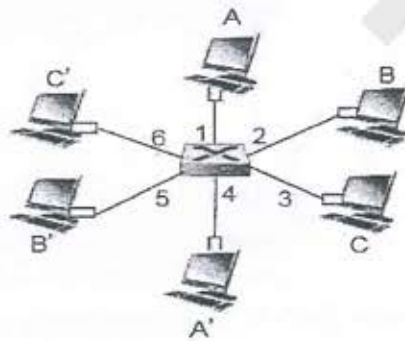   nodes. Show how the algorithm works by computing a routing table.

    c) Suppose there is an administrator that has four departments to manage. These are **5**
        sales and purchase department with 120 computers, development department with
        50 computers, accounts department with 26 computers and management
        department with 5 computers. If the administrator has IP 192.168.1.0/24,
        calculate the Network Address, Broadcast Address, Usable IP range, subnet
        mask.

[2] a) Consider the following diagram. What do you think which pipelined protocol is 5
     used here? Justify your answer. What are the differences between GBN and SR
     protocol?

     b) What is MPLS? **"MPLS system forward packets to outgoing interface based** 5
     only on label value", Justify this statement with appropriate figure and proper
     clarification.

     c) Differentiate between switch and router. Consider the following figure. How does 5
     switch know A' reachable via interface 4, B' reachable via interface 5 and C'
     reachable via 6? How entries created and maintained in switch table? Briefly
     explain.

[3] a) How wireless link is different from wired link? Briefly explain the components of 5
     the GSM 2G cellular network architecture with proper figure.

     b) What are the basic components of 802.11 LAN? Describe different scanning 5
     processes of 802.11 LAN.