



Daffodil International University
Department of Computer Science and Engineering
Faculty of Science and Information Technology
Final Examination, Semester: Summer 2018

Course Code: CSE 313
Section: ALL

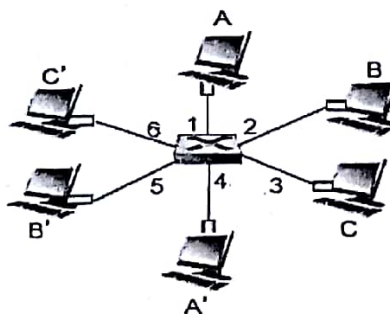
Course Title: Computer Networks
Course Teacher: ALL

Time: 2 Hours

Total Marks: 40

Answer any Four out of Five questions

1. a) Suppose Abul, with a Web-based e-mail account (such as Hotmail or gmail), sends a message to Babul, who accesses his mail from his mail server using POP3. Discuss how the message gets from Abul's host to Babul's host. Be sure to list the series of application-layer protocols that are used to move the message between the two hosts. 3
b) Why FTP is said out-of-band and HTTP is said in-band for sending their control information? 2
c) Write five names of application layer protocols. What is the mostly used application layer protocol? 2
d) Distinguish between Iterated query and Recursive query of DNS name resolution with diagram. 3
2. a) What are the approaches toward congestion control? Briefly explain the difference between a port address, a logical address and a physical address. 4
b) Compare and contrast Go-Back-N and Selective Repeat based on the following criteria. 4
 - i. How is the semantic of the Acknowledges being different?
 - ii. How is the semantic of timeout being different?
 - iii. How is the memory requirement at the receiving node being different?
 - iv. Which protocol makes more efficient use of network bandwidth? Why?
- c) Calculate the Checksum for the following bits: 2
Data 1- 11010101, Data 2- 01010101, Data 3- 11100110, Data 4- 01100110
3. a) Why is an ARP query sent within a broadcast frame? A host with IP address 30.50.43.23 and physical address B2:38:55:15:29:11 has a packet to send to another host with IP address 30.23.43.25 and physical address A4:6E:F4:59:83:F4. The two hosts are on the same Ethernet network. Show the ARP request and reply packets. 4
b) Six hosts are connected with a switch as the following figure: 3

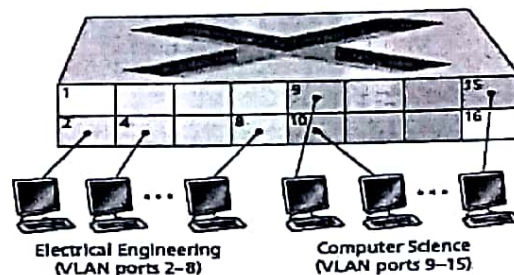


How does switch know that C is reachable via interface 3, B is reachable via interface 2? How does switch create and maintain this information in switch table? Briefly

explain.

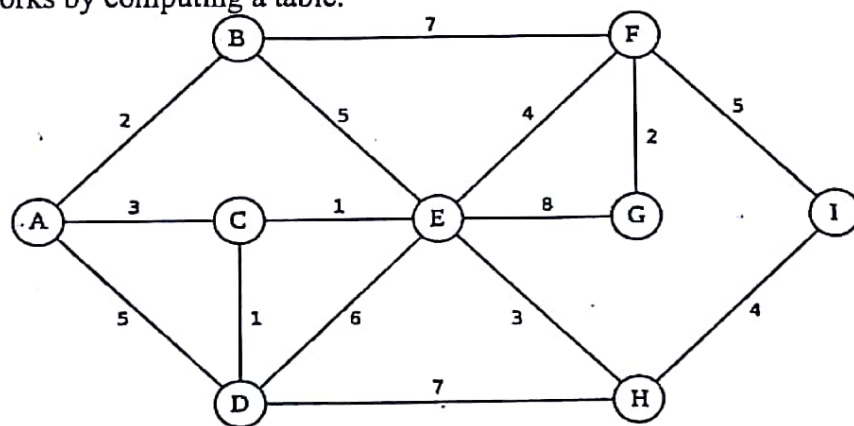
1+2

- c) i. Why does CSMA outperform Aloha?
 ii. Suppose, Electrical Engineering department wants to send data to Computer Science department. Is it possible? What do you think? Will any additional hardware be required for that?



4. a) Consider the following network. With the indicated link costs, use Dijkstra's shortest-path algorithm to compute the shortest path from E to all network nodes. Show how the algorithm works by computing a table.

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- b) An organization is granted the block 125.238.0.0/16. The administrator wants to create 512 subnets:
 i. Find the subnet mask required
 ii. Find the number of addresses in each subnet
 iii. Find the first and last allocable addresses in subnet 14

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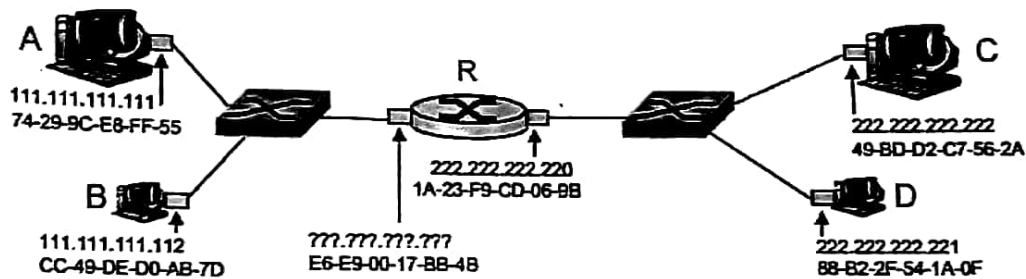
- c) Consider the following table and explain why this kind of table is used in router?

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Private Address	Private Port	External Address	External Port	Transport Protocol
172.18.3.1	1400	25.8.3.2	80	TCP
172.18.3.2	1401	25.8.3.2	80	TCP
...

5. a) Assume you are given to LAN scenario below:

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- a. Assign an IP address to the leftmost interface of the router, given that the subnet part of IP addresses are 24 bits.
 - b. Suppose A wants to send an IP datagram to B and knows B's IP address. Must A also know B's MAC address to send the datagram to B? If so, how does A get this info? If not, explain why not.
- b) From the following statements, indicate whether the statement is true/false. Also explain the logic of choosing the answer. (Any Three)
- i. Pure ALOHA performs better than Slotted ALOHA.
 - ii. FTP is based on P2P architecture.
 - iii. Token Ring is an example of a contention-based MAC protocol.
 - iv. A simple parity-check code can detect an even-number of errors.

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