



Daffodil International University
Department of Computer Science and Engineering

Faculty of Science & Information Technology

Midterm Exam Examination, Spring 2021 @ DIU Blended Learning Center

Course Code: CSE313 (Day), Course Title: Computer Networks

Level: 3 Term: 1 Section: A, B, C

Instructor: MAH Modality: Open Book Exam

Date: Sunday 7 March, 2020 Time: 09:00am-11:30am

Two and half hours (2:30) to support online open/case study based assessment Marks: 25

Directions:

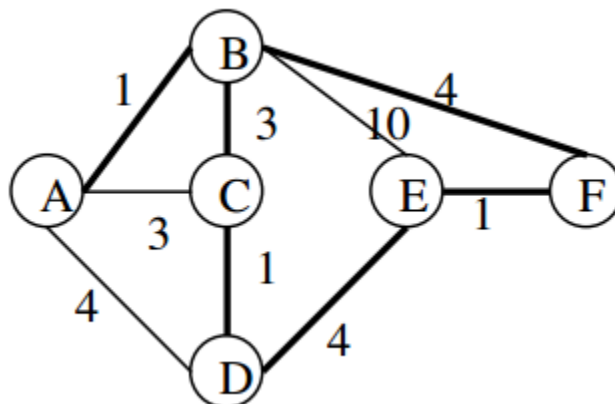
- **Students need to go through the CASE STUDY shown in this exam paper.**
- **Analyze and answer specific section based on your own thinking and work.**
- **Do not share as this will be treated as plagiarism by Blended Learning Center.**

Life will give you many options but today you have to answer ALL the questions.

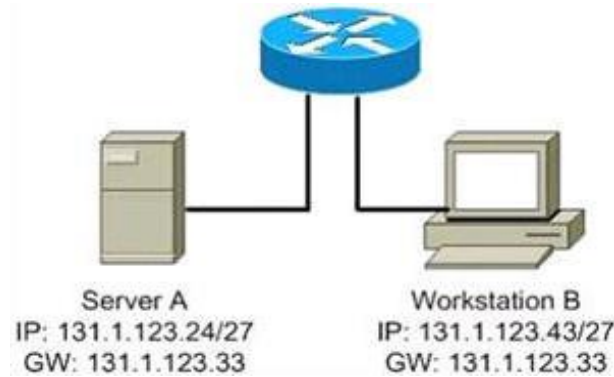
- a) An Organization is granted the block 11.17.180.0/8. The administrator wants to create 32 subnets. Do not consider "0" as First Subnet. Find out the followings:
 - i. Find the wildcard mask.
 - ii. Find the number of addresses in each subnet.
 - iii. Find the first and last host address in subnet 20.
 - iv. Find the Network and Broadcast address in subnet 30.

- b) Suppose you are a network administrator and you need to configure total network of a multinational company named XYZ. This company has multiple wings and they need multiple networks for multiple wings. In your opinion which addressing system will be good for this company so that IP wastage can be minimum? Justify your answer.

Considering the following diagram, show the operation of Link State Routing Technique for computing the least cost path from A to all destinations. Also explicitly list all the shortest path routes from A to all destinations.



c) In the following figure the user at Workstation B reports that Server A cannot be reached. 4
What is preventing Workstation B from reaching Server A? Justify your answer.



- 2 a) You have a network that needs 29 subnets while maximizing the number of host addresses available on each subnet. How many bits you need to borrow from the host field to provide the correct subnet mask? Mentions the subnet mask. 2
- b) What is NAT? How NAT helps in address depletion? Explain with proper justification. 3
- 3 a) Mention why centralized DNS is not practically used? 2
- b) Suppose A wants to send an email to B. This will involve four entities: A's mail client (for email composition and sending), A's outgoing mail server, B's incoming mail server, and B's mail client (for email retrieval and viewing). Between which of these four entities does the SMTP protocol operate? Mention other application layer mail access protocol for e-mail services. 3