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Daffodil International University

Faculty of Science & Information Technology
Department of Computing and Information System
Final Examination, Spring-2026
Course Code: CIS211, Course Title: Computer Networks
Level: 2 Term: 1

Exam Duration: 2 Hours **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.		Shwapno is the largest grocery chain in Bangladesh and best retail brand in the country. The very first outlet was established at Dhaka and later evolved with total 60 branches across Bangladesh including Chattogram, Khulna, Sylhet etc. Currently, they want to delivered their product through online, therefore they need to build a computer network for their head office and branch office. The head office situated at Dhaka and all the 60 branches are connected with head office network therefore all the data including sales, purchase, inventory record etc. are stored permanently in head office server.		
	a)	Draw a network diagram that shows the main components of the network. Allocate suitable IP addresses and add them in the diagram.	[4+2]	CO2
	b)	Select the suitable hardware for both branch office and head office network and justify the reason for choosing this networking hardware.	[4]	CO4
2.	*a)*	Based on the question-1, Current CEO of the company is very much concern about security of the data especially after opening of the online delivery services. How would you setup a secure head office network and also ensure the secure connection between the local and head office networks? Justify your answer.	[2+4]	CO4
	b)	Briefly explain the details functions of the routing protocol-Open shortest path first (OSPF).	[4]	CO2
3.	*a)*	State two (2) principles underpinning the Open Systems Interconnection (OSI) Reference Model. Briefly explain the function of the OSI (Open System Interconnection) Layers 1-4.	[2+4]	CO1
	b)	Briefly describe the THREE (3) key components of an 802.3 Ethernet frame format and 802.3 Ethernet packet format.	[4]	CO3
4.	*a)*	Distinguish between Transmission Control Protocol (TCP) and User Datagram Protocol (UDP).	[4]	CO3
	b)	Identify the need of the standards? Select which standard (802.11a/b/-n) is more effective than others?	[4]	CO4
	c)	Depict with a diagram how mesh topology creates a very resilient network?	[2]	CO2