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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2024
Course Code: CSE313, Course Title: Computer Networks
Level: 3 Term: 1 Batch: 62, 63

Time: 01:30 Hrs **Marks: 25**

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.	a)	Discuss the relationship between the layers of OSI model and how failure at one layer can affect the functioning of the entire communication process	[5]	CO1
2.		Explain how does DNS resolve the following domain using recursive DNS resolution : www.pickachuedu.edu.uk	[5]	CO2
3.	a)	You are responsible for designing a network for a company that has been allocated the IP address block 172.16.0.0/22. The company has multiple departments that require different sizes of subnets. Your task is to use Variable-Length Subnet Masking (VLSM) to allocate IP addresses efficiently based on the following requirements: MD department requires 120 hosts, Sales department Requires 63 usable host and IT department requires 14 host.	[5]	CO3
		1) Calculate Subnet mask for each department		
		2) Calculate the total number of host and address range for each subnet		
		3) Show how addresses are wasted after assigning in each department.		
4.		Consider the following IP addresses and answer the questions for each IP addresses individually. *(i)* 10.10.0.0/30 *(ii)* 172.16.20.0/26	[5]	CO3
		1) Calculate the Subnet mask and total number of host and total number of subnet for each IP.		
		2) Calculate the address range, first usable last usable address for each IP.		
5.		Apply the Dijkstra algorithm for the following graph and find the shortest distance from **a to z**	[5]	CO3

