



# 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.]

✓	✓	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
✓		Explain how does DNS resolve the following domain using recursive DNS resolution : www.pickachu.edu.uk	[5]	CO2
✓	✓	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.		
✓		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.		
✓		Apply the Dijkstra algorithm for the following graph and find the shortest distance from <b>a</b> to <b>z</b>	[5]	CO3