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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Final Semester Examination, Spring 2025

Course Code: CSE112, Course Title: Computer Fundamentals

Level: 01 Term: 01 Batch: 68

Time: 2:00 Hrs **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.	a)	TechNova Solutions decided to order customized inventory software to match its unique warehouse operations. This software is built specifically for their needs rather than using Pre-made solutions. Explain the advantages and disadvantages of using customized software in this situation.	[6]	CO1
	b)	Explain the difference between active and passive attacks and why passive attacks are more difficult to detect.	[4]	
2.	a)	What is a star topology in computer networks? Explain how its structure makes it easier to manage and maintain compared to other topologies.	[4]	CO1
	b)	Discuss the various security threats such as phishing, ransomware, DoS, man-in-the-middle attacks, and SQL injection, and explain the measures you should take to secure your data and devices against these attacks.	[6]	
3.	a)	Given the boolean expression: **$(A.B) + (\overline{C}.D) + (A.\overline{D})$.** i. Construct the truth table and design a logic circuit for the given (original) Boolean expression. ii. Simplify the Boolean expression using Boolean algebra rules	[6+4]	CO3
4.	a)	Explain the key differences between an algorithm and pseudo code in terms of structure and usage.	[4]	CO4
	b)	A university wants to automate its student admission process. When a student submits their application, the system collects personal details (name, age, contact information) and academic details (high school GPA and standardized test scores, if applicable). The system then checks if the student has a minimum GPA of 3.0 for admission. If the GPA is between 2.5 and 3.0, the student is placed on a waitlist, and if the GPA is below 2.5, the student is rejected. For students with a GPA of 3.0 or above, they are admitted and assigned a unique student ID. Based on these conditions, designs a flowchart that represents the decision-making process for collecting the student details, checking eligibility, and sending appropriate notifications (admission, waitlist, or rejection) without using any loops.	[6]	