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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Final Examination, Spring 2026
Course Code: CSE112 , Course Title: Computer Fundamentals
Level: 1 Term: 1 Batch: 71

Time: 02:00 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 bank wants to create a system to decide whether a customer can get a loan. First, the system checks the customer's monthly salary.If the salary is 30,000 taka or more, then it checks the credit score. -If the credit score is 700 or above, the loan is approved. -If the credit score is below 700, the loan is conditionally approved (with extra requirements). If the salary is less than 30,000 taka, the loan is rejected immediately (no need to check credit score). Finally, the system shows the decision to the customer. I. Write an algorithm for the above problem. II. Draw a flowchart for the above problem.	**[5+ 5]**	**CO2**
2.	*a)*	A company's network is being observed by two hackers: **Hacker A** quietly monitors the network traffic, scans for open ports, and collects information about devices and services but does not change anything. **Hacker B** intercepts messages, modifies transaction data, and sends fake instructions to the network devices, affecting their normal operation. Classify the attacks of **Hacker A** and **Hacker B** as **passive** or **active**, and compare active and passive attacks by providing at least three differences between them.	**[1+3]**	**CO3**
	b)	A student in Dhaka uses a mobile banking app (such as bKash) to send money and pay bills. One day, he connects to a free public Wi-Fi network at a cafe. An attacker on the same network secretly captures his login credentials and later uses them to access his account and view his personal and financial information. The attacker then changes transaction details and transfers money to another account. After some time, the mobile banking service becomes unavailable for several hours due to a system attack, and the student is unable to access his account.	**[3+3]**	

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		I. Identify which parts represent Confidentiality, Integrity, and Availability. II. Provide justification for each part of the CIA triad.		
3.	***a)***	**Scenario-A** A small company has a team of designers working on projects that require equal access to shared files in a circular workflow. **Scenario-B** A bank has multiple branch offices. Each branch needs to be directly connected to every other branch so that the network remains operational even if one or more connections fail. Choose the most suitable network topology for each scenario and justify your choice.	**[2+2]**	**CO3**
	b)	A startup wants to develop and launch a web application quickly without managing any hardware, such as servers or storage. Recommend the most suitable cloud service model for this startup and justify your choice with at least three reasons. Also, mention three key characteristics or benefits of this cloud model.	**[3+3]**	
4.	***a)***	Explain the working process of a robot and provide four real-life applications of robots.	**[3+2]**	**CO3**
	b)	A company keeps records of its employees, customers, products, and sales. At first, all the information was stored in separate files. Managing these files became difficult, as it was hard to find, update, and organize data quickly. To solve this problem, the company now uses a database to store and manage all its information efficiently. Describe why you need to **use a database** in this scenario.	**[5]**	