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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Mid Examination, Spring 2025

Course Code: CSE321, Course Title: System Analysis and Design

Level: 3 Term: 2 Batch: 62

Time: 1:30 hours **Marks: 25**

Answer all the following questions

You must answer parts of a question sequentially. The figure in square brace at the right side of a question indicates the marks allocated to the questions.

1.	**a)** A university plans to develop an **Online Admission System** to streamline the application process for students. The system will allow applicants to submit their information, upload required documents, pay application fees, and track their admission status. University staff will review applications, verify documents, and communicate decisions through the system. The goal is to reduce paperwork, minimize errors, and speed up the admission process. What are the roles of a Systems Analyst in designing and implementing the Online Admission System? If an information system were to be design for this system, what would be the operational, strategic, tactical, and statutory information?	**[4]**	**C01**
	b) A retail company wants to improve customer satisfaction, so they conduct two types of surveys. In one survey, customers are asked open-ended questions like, *"What do you like or dislike about our service?"* allowing detailed feedback. In the other, they use multiple-choice and rating scale questions like, *"How would you rate our service on a scale of 1-5?"* for easy analysis. Explain these both type of questions strategy in the survey.	**[4]**	**C02**
	c) A company is planning to invest in a new piece of machinery that will generate monthly cash inflows over the next 8 months. The expected cash inflows for each of the next 8 months are $5,000, $6,000, respectively, for 4 months each. The company wants to calculate the present value of these future cash inflows, given that the monthly interest rate is **3%** (or **0.03** as a decimal). **Calculate the total present value (sum of the present values for all 8 months).**	**[5]**	**C03**
2.	**ABC Corporation**, a multinational company, owns Fresh_Mart, an online grocery store. Employees of ABC Corporation receive their salaries through a secure payroll system that integrates with banks for direct deposits and with the tax		**CO2**

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authority for real-time tax calculations. Employees can log in to view their salary breakdown, tax deductions, and provident fund contributions. Additionally, ABC Corporation employees who shop at Fresh_Mart receive exclusive salary-based discounts on top of the standard membership-based discounts. Fresh_Mart offers three membership levels—Basic, Silver, and Gold—each with a different base discount, where Basic members receive a 2% discount, Silver members receive a 5% discount, and Gold members receive a 10% discount. ABC Corporation employees receive an additional salary-based discount stacked on top of their membership discount, which depends on both their salary bracket and years of service in the company. Employees earning less than 50,000 BDT receive an extra 3% discount, but if they have worked for 5 years or more, they receive an extra 4% discount instead. Employees earning 50,000 BDT or more receive an extra 5% discount, but if they have worked for 10 years or more, they receive an extra 7% discount instead. The payroll and Fresh_Mart systems are integrated to ensure secure authentication, salary verification, and real-time discount calculations at checkout. The system ensures secure authentication, salary verification, and discount calculations in real time, improving efficiency and enhancing employee benefits.

a) Construct a Context Level Diagram and Level 1 DFD from the scenario. **[6]**

b) Draw the decision tree and decision table for the above discount policy. **[6]**