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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2026
Course Code: CSE227, Course Title: System Analysis and Design
Level: 2 Term: 2 Batch: 68

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.]

A garment factory plans to introduce an automated Garment Factory Management System to manage its different operations. At present, the factory uses paper forms and separate spreadsheets, which cause many problems.

The system will store buyer and order details, style and size specifications, fabric and accessory stock, production targets and daily output, inspection results, shipment details, and employee, financial, and compliance records. Buyers provide order specifications, merchandisers register orders and update delivery dates, storekeepers record material receipts and issues, production supervisors submit cutting and sewing output, quality inspectors record defects and rework, the finishing and shipping teams update packing and dispatch information; and the accounts and HR staff maintain payment, payroll, and employee records.

The system will generate daily production and inventory reports, weekly production-performance summaries, monthly defect-rate and material-consumption reports, and delivery-delay reports for supervisors and department managers. It will also provide annual production trends, overall production costs, buyer demand patterns, and profitability summaries to help the factory manager plan future capacity, budgets, and business expansion. Furthermore, the system will prepare records and reports required for labour-law compliance, tax reporting, workplace safety inspections, and export documentation.

Before a batch is released for shipment, the system checks its quality-inspection result. If the defect rate is above 3%, the batch is sent for rework and then inspected again. If the defect rate is 3% or lower, the system checks whether the full order quantity has been packed. If the order is incomplete, the batch is held and the production supervisor is notified. If the order is complete, the system checks whether the required shipping documents and buyer/payment clearance are available. If both are available, shipment is approved; otherwise, dispatch is put on hold until the missing requirement is resolved.

The factory has computers and a local network but needs a secure central database, backup facilities, and staff training. Some employees prefer the manual process. The system must protect confidential buyer, order, financial, and employee information and be implemented within nine months.

Now answer the following questions:

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1.	***a)***	Identify the operational, tactical, strategic, and statutory information required for the above system. Explain how the identified information helps in improving the efficiency of the system.	**[4]**	**CO1**
	b)	Explain the major activities of the feasibility study and final system specification phases of the SDLC for the given Garment Factory Management System scenario. Also, describe how each phase influences the system design.	**[4]**	
2.	***a)***	Identify relevant sources of information for gathering system requirements from the given scenario. Also specify appropriate information-gathering techniques for each source and justify your answer.	**[2]**	**CO2**
	b)	Classify the information collected from the identified sources as structured or unstructured, providing relevant examples from the above scenario and write some advantages and disadvantages of these two formats in information processing.	**[2]**	
3.		Construct the Level 0 and Level 1 Data Flow Diagram (DFD) for the Garment Factory Management System.	**[2+5]**	**CO2**
4.	***a)***	Develop a decision tree for the batch-release procedure described in the scenario.	**[3]**	**CO2**
	b)	Develop a decision table for the same procedure.	**[3]**	