



Daffodil International University
Faculty of Science & Information Technology
Department of Software Engineering
Midterm Examination, Summer 2026

Course Code: SE 121; Course Title: Structured Programming

Sections & Teachers: A, B, C (MIR), D, E (MR), F, G, H (MNA), I (KRY)

Time: 1 Hour 30 Mins

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.]

1.	A treasure hunter discovers an old notebook containing the following steps: 1. Start 2. Input the number of gold coins. 3. If coins are greater than 100, print "Rich". 4. Otherwise, print "Explorer". 5. Stop. Answer the following: a) Articulate whether the above sequence is an Algorithm or a Flowchart. Justify your answer with appropriate reasons. [2] b) Compare flowcharts and programming code, and describe why flowcharts are generally easier to understand. [2] c) Infer the flowchart symbol that should be used for the decision-making step in this problem. [1]	[Marks-5]	CLO-1 Level-2
2.	In a role-playing game, a character's overall power is determined by three attributes: Attack, Defense, and Speed. The game calculates the character's power using the following formula: $\text{Power} = (\text{Attack} \times 2) + (\text{Defense} \times 1.5) + (\text{Speed} \times 1.2)$ Based on the calculated power value, the character is assigned one of the following ranks: • Power $\geq 400 \rightarrow$ Legendary • Power $\geq 300 \rightarrow$ Epic • Power $\geq 200 \rightarrow$ Rare • Otherwise $\rightarrow$ Common		CLO-2 Level-3
a)	Construct a flowchart that illustrates the process of calculating the character's power and determining the corresponding rank.	[Marks-5]	

	b) Classify the character into the appropriate rank category by writing a C program. <table><tr><th>Sample Input</th><th>Sample Output</th></tr><tr><td>Enter Attack, Defense, and Speed values respectively: 80 60 50</td><td>Rank: Epic</td></tr></table>	Sample Input	Sample Output	Enter Attack, Defense, and Speed values respectively: 80 60 50	Rank: Epic	[Marks-5]	
Sample Input	Sample Output						
Enter Attack, Defense, and Speed values respectively: 80 60 50	Rank: Epic						
3.	a) A restaurant offers the following menu items: 1. Burger – ₹200 2. Pizza – ₹450 3. Fried Chicken – ₹250 4. Grilled Chicken – ₹270 The customer enters a menu item number and the quantity ordered. The restaurant calculates the total bill based on the selected item and quantity. Construct a restaurant bill calculator by writing a C program using a <i>switch-case</i> statement. If an invalid menu item number is entered, display "Invalid Menu Choice". <table><tr><th>Sample Input</th><th>Sample Output</th></tr><tr><td>Enter the menu item number: 4 Enter the quantity: 3</td><td>Total bill amount: 810</td></tr></table>	Sample Input	Sample Output	Enter the menu item number: 4 Enter the quantity: 3	Total bill amount: 810	[Marks-5]	CLO-3 Level-3
Sample Input	Sample Output						
Enter the menu item number: 4 Enter the quantity: 3	Total bill amount: 810						
	b) Code a C program for a college grading system where the system will provide the average grade based on the subject scores. The system has the following rules- a. Ask the user for n, where n is the number of subjects, n has to be greater than 2. b. If an input score is less than 0 or greater than 100, the system will print "Invalid Score, Enter Again". c. The system will take all the scores and give a grade on the average score following this grading system: 80–100 marks = A+, 70–79 marks = A, 60–69 marks = B, 50–59 marks = C, 40–49 marks = D, and 0–39 marks = F. <table><tr><th>Sample Input</th><th>Sample Output</th></tr><tr><td>Number Of Subjects: 3 Subject Scores: 78 62 59</td><td>Average Grade: B</td></tr></table>	Sample Input	Sample Output	Number Of Subjects: 3 Subject Scores: 78 62 59	Average Grade: B	[Marks-5]	
Sample Input	Sample Output						
Number Of Subjects: 3 Subject Scores: 78 62 59	Average Grade: B						