ourdiu.com | Shared by Pronoy Dass 261-35-XXX (P9)

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: **Power=(Attack×2)+(Defense×1.5)+(Speed×1.2)** Based on the calculated power value, the character is assigned one of the following ranks: • Power ≥ 400 → Legendary • Power ≥ 300 → Epic • Power ≥ 200 → Rare • Otherwise → 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]	

ourdiu.com | Shared by Pronoy Dass 261-35-XXX (P9)

	b)	**Classify** the character into the appropriate rank category by writing a C program. **Sample Input:** Enter Attack, Defense, and Speed values respectively: 80 60 50 **Sample Output:** Rank: Epic	[Marks-5]	
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 *switch-case* statement. If an invalid menu item number is entered, display "Invalid Menu Choice". **Sample Input:** Enter the menu item number: 4 Enter the quantity: 3 **Sample Output:** Total bill amount: 810	[Marks-5]	CLO-3 *Level-3*
	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.** **Sample Input:** Number Of Subjects: 3 Subject Scores: 78 62 59 **Sample Output:** Average Grade: B	[Marks-5]	