



Daffodil International University
Department of Software Engineering
Faculty of Science & Information Technology
Final Examination, Spring 2025

Course Code: SE 121; Course Title: Structured Programming
Sections & Teachers: MTK(A, B), SA (C), SCS (D, E), AHZ (F, G) MSA (H), MR (I, J, M), JIC (K, L), MSSS (N), ST (O), MRN (P), NML (Q)

Marks: 40

Time: 2 Hours

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)	Detect any errors in the following codes and Modify them with the necessary changes.	[Marks-6]	CLO-3 Level-3		
		<table border="1"><tr><td>i) #include <stdio.h> int main() { int arr[3] = {1, 2, 3, 4}; for (int i = 0; i < 4; i++) printf("%d ", arr[i]); return -1; }</td><td>ii) #include <stdio.h> int main() { char q1[5], q2[5]; gets(q1, q2); printf("You entered: %s and %c", q1, q2); return; }</td></tr></table>	i) #include <stdio.h> int main() { int arr[3] = {1, 2, 3, 4}; for (int i = 0; i < 4; i++) printf("%d ", arr[i]); return -1; }		ii) #include <stdio.h> int main() { char q1[5], q2[5]; gets(q1, q2); printf("You entered: %s and %c", q1, q2); return; }	
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	b)	Suppose you are working as a junior intern at a local weather station. Your task is to analyze the weekly temperature data to find the average temperature over 7 days. Construct a C program that uses an array to store daily temperatures (°C) over a week and compute the average temperature.	[Marks-7]			
		<table border="1"><tr><td>Sample Input: Enter temperature for Day 1: 30 Enter temperature for Day 2: 32 Enter temperature for Day 3: 31 Enter temperature for Day 4: 29 Enter temperature for Day 5: 35 Enter temperature for Day 6: 33 Enter temperature for Day 7: 28</td><td>Sample Output: Average Temperature = 31.14</td></tr></table>	Sample Input: Enter temperature for Day 1: 30 Enter temperature for Day 2: 32 Enter temperature for Day 3: 31 Enter temperature for Day 4: 29 Enter temperature for Day 5: 35 Enter temperature for Day 6: 33 Enter temperature for Day 7: 28	Sample Output: Average Temperature = 31.14		
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	Suppose you are building a simple registration system for a workshop. The system should take first and last names separately and then display the full name. Construct a C program that concatenates the first and last name and displays the full name. <table><tr><td>Sample Input: Enter First Name: Sarah Enter Last Name: Khan</td><td>Sample Output: Full Name: Sarah Khan</td></tr></table>	Sample Input: Enter First Name: Sarah Enter Last Name: Khan	Sample Output: Full Name: Sarah Khan	[Marks-7]	
Sample Input: Enter First Name: Sarah Enter Last Name: Khan	Sample Output: Full Name: Sarah Khan				
2.	a) Identify the output of the following C codes and Explain the reasoning behind your answer. <table><tr><td> i) <pre>#include <stdio.h> int modify(int a) { if (a % 3 == 0) return a + 5; else return a - 2; } int main() { int i, result = 0; for(i = 1; i <= 5; i++) { result += modify(i); } printf("%d\n", result); return 0; }</pre></td><td> ii) <pre>#include <stdio.h> int calculate(int x, int y) { if (x > y) return x - y; else return x + y; } int main() { int p = 8, q = 5; printf("Result = %d\n", calculate(p, q)); printf("Result = %d\n", calculate(q, p)); return 0; }</pre></td></tr></table>	i) <pre>#include <stdio.h> int modify(int a) { if (a % 3 == 0) return a + 5; else return a - 2; } int main() { int i, result = 0; for(i = 1; i <= 5; i++) { result += modify(i); } printf("%d\n", result); return 0; }</pre>	ii) <pre>#include <stdio.h> int calculate(int x, int y) { if (x > y) return x - y; else return x + y; } int main() { int p = 8, q = 5; printf("Result = %d\n", calculate(p, q)); printf("Result = %d\n", calculate(q, p)); return 0; }</pre>	[Marks-6]	CLO-4 Level-4
i) <pre>#include <stdio.h> int modify(int a) { if (a % 3 == 0) return a + 5; else return a - 2; } int main() { int i, result = 0; for(i = 1; i <= 5; i++) { result += modify(i); } printf("%d\n", result); return 0; }</pre>	ii) <pre>#include <stdio.h> int calculate(int x, int y) { if (x > y) return x - y; else return x + y; } int main() { int p = 8, q = 5; printf("Result = %d\n", calculate(p, q)); printf("Result = %d\n", calculate(q, p)); return 0; }</pre>				
	b) Suppose you are developing a math helper tool for primary school students. The students are having trouble recognizing the prime numbers. Analyze and simulate a function that checks whether the entered number is prime. <table><tr><td>Sample Input: Enter a number: 17</td><td>Sample Output: 17 is a prime number.</td></tr></table>	Sample Input: Enter a number: 17	Sample Output: 17 is a prime number.	[Marks-7]	
Sample Input: Enter a number: 17	Sample Output: 17 is a prime number.				
	c) Suppose you are simulating an ATM system that must validate withdrawal requests. To ensure proper denomination availability, the ATM only allows withdrawals that are divisible by 500 or 1000, and only if the amount is less than or equal to the account balance. Analyze and simulate the function <i>int withdraw (int balance, int amount)</i> to determine whether a withdrawal amount is valid based on ATM rules (divisibility by 500 or 1000 and sufficient balance). Update the balance accordingly and write the complete C program to implement this logic. <table><tr><td>Sample Input: Enter account balance: 5000 Enter withdrawal amount: 1000</td><td>Sample Output: Transaction Approved. Remaining Balance = 4000</td></tr></table>	Sample Input: Enter account balance: 5000 Enter withdrawal amount: 1000	Sample Output: Transaction Approved. Remaining Balance = 4000	[Marks-7]	
Sample Input: Enter account balance: 5000 Enter withdrawal amount: 1000	Sample Output: Transaction Approved. Remaining Balance = 4000				