SOMAIYA VIDYAVIHAR UNIVERSITY
K J Somaiya School of Engineering

K. J. Somaiya School of Engineering, Mumbai-77
(Somaiya Vidyavihar University)

Somaiya TRUST

Course:	Programming in C			**Semester:**	II	**Date:**	
Division:		**Batch:**		**SET**	E	**Name:**	
Exam:	OST			**Time:**		**Roll No:**	

Q 1	Attempt Any ONE [Show all test Cases in output.]	Marks
1	Develop a C program to **calculate the bill for an electricity consumer** using a **switch statement**. • If units consumed are **0–100**, the cost is **₹5 per unit**. • If units consumed are **101–300**, the cost is **₹7 per unit**. • If units consumed are **above 300**, the cost is **₹10 per unit**. The program should take the number of units consumed as input, calculate the total bill, and display the amount. The bill amount will be calculated based on slab-wise pricing. If the total units consumed are 120, the pricing will be as follows: For the first 100 units → ₹5 per unit, For the next 20 units (101-120) → ₹7 per unit **Test Case 1:** **User consumes 80 units** **Total bill amount: ₹400.00** **Test Case 2:** **User consumes 150 units** **Total bill amount: ₹850.00** **Test Case 3:** **User consumes 350 units** **Total bill amount: ₹2400.00** **Use of Switch Statement & Full implementation - 5 marks [Switch-case -- Must]** **Logic to calculateBill 2 marks** **Check all test cases 1 mark**	08
2	A **company has 4 departments**, and **each department has 5 employees**. Each employee receives a **monthly salary**. Take salary from user input. Write a **C program using a two-dimensional array** to: 1. **Calculate and display the total salary paid to each department.** 2. **Calculate and display the total salary paid by the company** **Test Case 1: (Output)** **Total Salary Paid to Each Department:** **Department 1: ₹250000** **Department 2: ₹305000** **Department 3: ₹235000** **Department 4: ₹350000** **Total Salary Paid by the Company: ₹1140000** **Test Case 2: (Output)** **Total Salary Paid to Each Department:** **Department 1: ₹100000** **Department 2: ₹130000** **Department 3: ₹85000** **Department 4: ₹150000** **Total Salary Paid by the Company: ₹465000** **Input Salary - 2 marks** **Logic to calculate dept salary - 3 marks** **Logic to calculate total salary - 2 marks** **Display and Check all test cases 1 mark**	08

Q 2	Attempt Any ONE [Show all test Cases in output.]	Marks
1	Write a C program using a structure to store shopping cart details (**Product ID, Product Name, Price, Quantity Ordered**). The program should: • Accept details of N products added to the cart. • Sort the products in descending order based on price and Name. • Display the sorted shopping cart along with the total amount. Write three functions named ***sortbyName(), sortbyPrice() & display().***	12

Test Case:	**OUTPUT:**
Enter the number of products in the cart: 3 Enter details for Product 1: Product ID: 101 Product Name: Laptop Price: 50000 Quantity Ordered: 1 Enter details for Product 2: Product ID: 102 Product Name: Mouse Price: 500 Quantity Ordered: 2 Enter details for Product 3: Product ID: 103 Product Name: Keyboard Price: 1000 Quantity Ordered: 1	Sorted Shopping Cart (Ascending Order by Price): Product ID: 102 Product Name: Mouse Price: ₹500.00 Quantity: 2 Total: ₹1000.00 Product ID: 103 Product Name: Keyboard Price: ₹1000.00 Quantity: 1 Total: ₹1000.00 Product ID: 101 Product Name: Laptop Price: ₹50000.00 Quantity: 1 Total: ₹50000.00 **Total Bill Amount: ₹52000.00**

Define structure for product 2 marks
Input new product 2 marks
Function to sort based on price 3 marks
Function to sort based on name 3 marks
Function to display 2 marks

2	Write a C program that performs the following operations on an array using functions and pointers: 1. Accept N numbers from the user and store them in an array using a function. 2. Use a pointer to traverse the array and find both the largest and smallest elements. 3. Implement a function to search for a given number in the array and return all indices where the number appears. 4. Display the largest, smallest elements, and indices of the searched number (if found). Implement following functions: ***accept(), largest(), smallest(), search()***	12

Test Case 1:	**Test Case 2:**
Enter the number of elements: 5 Enter 5 elements: 12 45 7 89 45	Enter the number of elements: 6 Enter 6 elements: 10 20 30 40 50 60

Enter the number to search: 45 Largest element: 89 Smallest element: 7 Number 45 found at indices: 1, 4	Enter the number to search: 25 Largest element: 60 Smallest element: 10 Number 25 not found in the array.	

Function to accept using pointers 2 marks
Function to largest using pointers 2 marks
Function to smallest using pointers 2 marks
Function to search using pointer 4 marks
Display results 2 marks