Guru Nanak Dev Engineering College, Ludhiana			
Department of Applied Sciences			
Program	B.Tech.CSE, IT	**Semester**	1
Subject Code	ESE-104	**Subject Title**	Programming for Problem Solving
Mid Semester Exam (MSE) No.	2	**Course Coordinator(s)**	Ranjodh Kaur, Siddharth Jain, Gagneet Kaur, Kapil Sharma,Jaswant Singh,Sita Rani, Kuljit Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	09th November, 2023	**Roll Number**	

Note: Attempt all questions. All assumptions must be clearly stated.

Q. No.	Question	MM
Q1	The elements of an array are given 32, 51, 27, 85, 66, 23, 13, 57. Identify and write the arrangement of elements after first pass of the bubble sort method.	2
Q2	How does a pointer store the memory address of a variable? Give example.	2
Q3	Compare in detail selection sort with insertion sort algorithm.	4
Q4	Provide a detailed explanation of the recursive process with the help of a user-defined function, describing how the function calls itself and terminates to solve a specific problem.	4
Q5	Given two matrices, the task is to multiply them. Matrices can either be square or rectangular. Write a program for this task.	4
Q6	Consider a scenario where you're tasked with managing student records using an array of structures in C. The structure '**Student**' contains the following fields: **studentID**, **name**, **age**, and **grade**. Write a program that allows the user to perform the following tasks: a) Input student details (ID, name, age, grade) for '**n**' students (where 'n' is determined by the user). b) Display the details of all students in the record. c) Find and display the student(s) with the highest grade. In your program, implement functions for each of these tasks.	8

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