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MCA
(SEM I) THEORY EXAMINATION 2023-24
PROBLEM SOLVING USING C

TIME: 3HRS**M.MARKS: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.**

Q no.	Question	Marks
a.	Differentiate between compiler & interpreter.	2
b.	Describe rules of declaring identifiers.	2
c.	Differentiate between actual argument and formal argument.	2
d.	Predict how long the following loop runs? for (int x = 1; x = 3; x++)	2
e.	Write the data structure used in implementing recursion.	2
f.	There is a two-dimensional array of type integer. Write the statement to display the base address of the array.	2
g.	How is a null pointer created?	2
h.	On successful execution of the below code predict the result, if address of variable 'a' is 210? <pre>void main() { float a, *b; b = &a; b = b+3; printf ("%d", b); }</pre>	2
i.	Explain the use of rectangle() functions.	2
j.	Though we can write our program without File handling, what is the need of file handling in C?	2

SECTION B**2. Attempt any three of the following:**

a.	What is the use of a flow chart? List out the symbols used in a flow chart. Draw a flow chart to find whether the given year is a leap year or not.	10
b.	How switch stamen is different from else – if ladder? Construct a program in C to print the bellow pattern. <pre> * * * * * * * * * * * * * * *</pre> The number of lines to print to be entered by the user.	10
c.	Illustrate the concept of recursion and base condition of recursion. Construct a recursive function to find the factorial of an input number N..	10
d.	How a structure is different from an array? Write a C program to store employee details such as Empid, Name, Salary and Age for 50 employees and display the employee details who are getting salary more than 15000.	10



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e.	Develop a C program to copy the contents of one file to another file. The file name must be pass through command line arguments.	10
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SECTION C**3. Attempt any one part of the following:**

a.	Explain the different data types supported by C language? Explain primitive data types in terms of memory size, format specifier and range.	10
b.	What do you mean by operator precedence and associativity? Explain all bit-wise AND, bit-wise OR and bit-wise XOR operators with suitable example.	10

4. Attempt any one part of the following:

a.	Write a program to check the input number is an Armstrong number or not.	10
b.	Identify the use of modular programming? Write a program by using user define function to check given number is prime or not. Porotype of function should be like this int is_prime(int).	10

5. Attempt any one part of the following:

a.	Illustrate the different ways to initialize a string during compile time as well as during run time. Write a program to count the number of words and number of characters in an input string.	10
b.	Define a pointer. How do you declare and initialize a pointer? Write a program to add the contents of an integer array using pointer.	10

6. Attempt any one part of the following:

a.	Define scope, visibility, and lifetime of a variable. Explain in detail about all storage classes supported in C language with reference to scope and lifetime, visibility, and default value.	10
b.	How a structure is different from union? Discuss the concept of nested structure. Write a program for your illustration.	10

7. Attempt any one part of the following:

a.	What are the drawbacks of static memory allocation? Write a program to allocate space dynamically to store N numbers. Find the sum and average of these numbers.	10
b.	What is the use of initgraph() function? Write a program to display 50 concentric circles.	10