U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2024 Supplementary Examinations

Programme: B.E. **Semester: I / II**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 21CC1ESPSP / 21CC2ESPSP **Max Marks: 100**
Course: Problem-Solving Through Programming

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1	a)	With a neat sketch, explain the block diagram of a computer	**08**
	b)	Differentiate between the following (Any two differences) (i) Primary Memory & Secondary Memory (ii) System software & Application software	**04**
	c)	Explain the structure of a C program with an example program.	**08**

UNIT - II

2	a)	Explain the various types of IF statements with examples	**10**
	b)	Write a C program for plotting a Pascal's triangle.	**06**
	c)	Differentiate between : (i) getchar() & putchar() (ii) scanf() & printf()	**04**

OR

3	a)	Compare & contrast between while loop & do-while loop.	**06**
	b)	Explain switch statement with its syntax and an example program.	**07**
	c)	Write a C program to perform the computation of Binomial co-efficient.	**07**

UNIT - III

4	a)	Write a C program to accept values in ascending order into an array and perform binary search to search a given element. Display the appropriate messages	**10**
	b)	Without using built in functions, write a C program to read two strings into S1 and S2 and compare whether they are equal or not. If they are not equal, join them together. At the end, the program should print the contents of S1and S2 along with their lengths.	**10**

OR

5	a)	The books in the library are randomly placed on the shelves. Design a C program that sorts the books based on ISBN. Use bubble sort to implement the program. Books are placed in the following order: ISBN ={ 1011, 1054, 1009, 2031, 1075}	**10**

b) Write a C program to find the sequence of characters “go” in a given word “Mango”. Display the position of the word “go” if found; otherwise display appropriate messages. **10**

UNIT - IV

6 a) List & explain the categories of user-defined functions based on arguments and return values. **08**

b) Consider that a child is climbing up a magical ladder which has numbering on first 2 steps. The design is such that every step is sum of previous 2 steps (3^{rd} Step = 2^{nd} Step+1^{st} Step). Write a recursive program to help child print the result of all the steps climbed. Consider Step0=0 and Step1=1. **06**

c) Define the term recursion & write a recursive call tree for finding factorial of a positive integer. **06**

UNIT - V

7 a) Define a structure type, struct personal that would contain person name, date of joining and salary. Using this structure, write a C program to read this information for one person from the keyboard and print the same on the screen. **06**

b) Mention the similarities & differences between Structures & Unions. **06**

c) Write a C program to compute the sum, mean & standard deviation of all elements stored in an array of N real numbers using pointers. **08**

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