Code No.: R22CS103ES | R22 | H.T.No. | | | 8 | R | | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–B.TECH–I–Semester End Examinations (Supply) - September- 2023
PROGRAMMING FOR PROBLEM SOLVING
(Common for all)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(10 Marks)**

1. a)	Define an Algorithm.	[1M]
b)	While(n>2){ printf("Welcome\n"); n=n/2;} How many times this loop will print the string "Welcome" if n=5?	[1M]
c)	Define an array. How arrays are declared and initialized?	[1M]
d)	Define a string?	[1M]
e)	Why files are necessary? Define file.	[1M]
f)	Name various File opening modes.	[1M]
g)	What are advantages and limitations of recursion?	[1M]
h)	Define a function.	[1M]
i)	What is the time complexity of selection sorting?	[1M]
j)	List the advantages of a linear search.	[1M]

PART-B **(50 Marks)**

2.	Write a program to find the roots of the quadratic equation.	[10M]
	OR	
3.	Discuss while and do-while loops with the help of examples.	[10M]
4.	Define structures? Explain Nested Structures with a valid example.	[10M]
	OR	
5.	List and explain different types of arrays in C.	[10M]
6.	Write a C program to count the number of words, lines and characters in the given text file.	[10M]
	OR	
7.	Explain the syntax for fread() and fwrite() functions.	[10M]
8.	Discuss about dynamic memory allocation functions.	[10M]
	OR	
9.	Explain the following i. Call by value. ii. Call by reference.	[10M]
10.	Explain bubble sort with an example program.	[10M]
	OR	
11.	Discuss the linear search with an example program.	[10M]

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