GIET UNIVERSITY, GUNUPUR – 765022

MCA (First Semester) Examinations, January – 2023

MCA23101 - C Programming and Data Structures

Time: 3 hrs Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Define sparse matrix.	CO2	K2
b. Define array with an example.	CO2	K2
c. What is the use of printf() and scanf() functions? Give an example.	CO1	K1
d. What is the use of a function in C?	CO2	K1
e. What is a pointer in C? Give an example.	CO2	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Write a C program to convert temperature Fahrenheit to Celsius.	5	CO1	K2
b. Write a C program to check whether the given year is leap year or not.	5	CO1	K2
(OR)			
c. Write a 'C' Program to accept 'n' numbers from user, store these numbers into an array. Find out Largest and Smallest number from an array.	5	CO1	K2
d. Write a C program to check if the given number is even or odd.	5	CO1	K2
3.a. Write a C program to read two integer numbers and find their sum, difference, product and quotient using separate functions.	5	CO2	K2
b. Design two functions area & perimeter which will return area and perimeter of a rectangle.	5	CO2	K2
(OR)			
c. Write a C program to check a number is even or odd using the concept of functions.	5	CO2	K2
d. Differentiate between call by value and call by reference with a relevant example.	5	CO2	K3
4.a. Explain briefly different types of data structures.	5	CO3	K2
b. Explain algorithm for linear search with necessary steps.	5	CO3	K2
(OR)			

c.	Explain the working of bubble sort with the help of an example.	5	CO3	K2
d.	Discuss the algorithm for Insertion sort.	5	CO3	K1
5.a.	Explain double ended queue and its implementation.	5	CO4	K3
b.	Explain the steps involved in insertion at the beginning of single linked list.	5	CO4	K3
	(OR)			
c.	Construct a binary search tree for the data. S={45,15,79,90,10,55,12,20,50}	5	CO5	K2
d.	What is a Binary tree explain with Example?	5	CO5	K2
6.a.	Explain the steps to delete an element form the double linked list.	5	CO4	K3
b.	Write an algorithm to insert and delete element from the queue.	5	CO4	K3
	(OR)			
c.	What is a tree? Explain different tree Terminologies.	5	CO5	K2
d.	Explain DFS Briefly.	5	CO5	K2

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