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**GIET UNIVERSITY, GUNUPUR – 765022**  
M. C. A (First Semester) Examinations, May - 2021  
**MCA20101- PROBLEM SOLVING AND DATA STRUCTURES**

Time: 2 hrs

Maximum: 50 Marks

(The figures in the right hand margin indicate marks.)

**PART – A****(2 x 10 = 20 Marks)**Q.1. Answer *ALL* questions

- a. Define the term algorithm.
- b. Write down any two differences between call by value and call by reference.
- c. Draw the flowchart for addition of two numbers.
- d. How do you declare single dimensional array?
- e. What is meant by Pointer variable?
- f. Define Sparse Matrix.
- g. How do you measure space complexity?
- h. Write down any two applications of Queue.
- i. Define the term Searching.
- j. What is the difference between linear and binary search?

**PART – B****(6 x 5 = 30 Marks)**Answer ANY FIVE questions

Marks

2. What are the different types of looping statements? Explain each one of them with example. (6)
3. Write a C Program to find factorial of a number using recursion. (6)
4. Explain the concept of Dynamic memory allocation and Self – referential structures. (6)
5. Discuss in detail about array of structure and pointers to structure. (6)
6. Write a code to push and pop an element in Stack (6)
7. How do you implement doubly linked list? (6)
8. Explain Bubble Sort with Neat example. (6)

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