Master Of Computer Application (MCA)-I (CBCS Pattern) Second Semester CBCS

PSMCAT202 - Data Structures Paper - II

P. Pages : 2 **GUG/W/18/11096**

Time : Three Hours * 3 2 0 7 * Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and labeled diagram and use supporting data whenever necessary.
3. Avoid vague answers and write specific answers related to Questions.

1. Either:-

a) Define Data structure. Explain different operation on Data structure. **8**

b) What is an Array? Explain the storage and memory Representation of different types of an array. **8**

OR

c) Define stack. Explain different application of stack in detail. **8**

d) Explain the different operations performed on Array with giving one suitable example. **8**

2. Either:-

a) What do you mean by Recursion? Explain different properties of Recursion in detail. **8**

b) Define Queue. Give the Array representation of Queue. **8**

OR

c) Explain following in detail: **8**
1) Circular Queue
2) Priority Queue.

d) Write an algorithm for adding a element in the Linked List. **8**

3. Either:-

a) What is Tree? Write an algorithm for Binary Tree Traversal. **8**

b) Explain following in detail: **8**
1) Binary search Tree
2) AVL Tree.

OR

c) Define Graph. Explain following terms related to Graph: **8**
1) Path Matrix
2) Spanning Tree

d) Write Kruskal Algorithm also explain it in detail. **8**

4. Either:-

a) What do you mean by sorting? Give the brief comparison of different sorting method. **8**

b) Write an algorithm to sort an elements using Insertion sort. **8**

OR

c) Explain following in detail: **8**

1) Heap sort

2) Quick sort

d) Write an algorithm to demonstrate the Linear search. Also explain it. **8**

5. Attempt all the Questions.

a) Write short note on push and pop operations. **4**

b) Discuss in short about types of Linked List. **4**

c) Write short note on Treaded Binary search tree. **4**

d) Write a note on Binary search. **4**

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