B.Sc. - III (Information Technology) (CBCS Pattern) Semester-V

007 - Elective-I - Paper-III - Data Structures

P. Pages : 2 **GUG/S/25/13134**

Time : Three Hours * 0 2 8 0 * Max. Marks : 40

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and clean diagram wherever necessary.
3. Avoid vague answer and write relevant and specific to question any.

Either :

1. a) What is Data structures? Explain various operations on Data Structure. **4**

b) Explain Binary search in detail. **4**

OR

c) Write an Algorithm to find out largest of six number. **4**

d) What is Array? Explain the types of Array. **4**

Either :

2. a) What is stack? Explain different features of Stack. **4**

b) Write an Algorithm to Remove the element from stack. **4**

OR

c) What is Queue? Explain different application of Queue. **4**

d) Write an Algorithm to insert the element in Queue using Array Implementation. **4**

Either :

3. a) Write Advantages and disadvantages of Recursion. **4**

b) Write an Algorithm Tower of Hanoi using Recursion method using two Recursive calls. **4**

OR

c) What is linked lisk? Explain operation on linked lisk. **4**

d) Write an Algorithm to search an element in sorted list. **4**

Either :

4. a) What is spanning tree? Explain the concept of minimum spanning tree. **4**

b) Defined the following terms. **4**

1) Root node.

2) Non Terminal node.

OR

c) Define Graph and explain the representation of graph in detail. **4**

d) Explain the following **4**

a) Traversing a graph.

b) Breath – first search.

5. Solve all the question.

a) Explain fundamentals of DS. **2**

b) What is multiple stack? **2**

c) What is Recursion? Explain. **2**

d) Explain the following **2**

1) Connected Graph
2) Mixed Graph.

****