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**4th Sem. / Computer Engineering**  
**Sub : Data structures using C**

Time : 3 Hrs.                                      M.M. : 100

**SECTION-A**

**Note: Multiple type Questions. All Questions are compulsory. (10x1=10)**

- Q.1 FIFO stands for  
a) Full insertion full out    b) First in first out  
c) First in final out        d) Final in first out
- Q.2 "POP" operation is used in  
a) Stack                        b) Queue  
c) Tree                         d) Linked list
- Q.3 An array is a collection of \_\_\_\_\_ elements.  
a) Homogeneous              b) Haterogeneous  
c) Dissimilar                 d) None of these
- Q.4 Operations performed on data structure  
a) Insertion                    b) Deletion  
c) Traversing                 d) All of these
- Q.5 The removal of elements in a queue is done from the  
a) Front End                  b) Back End  
c) Rear end                    d) None of these

- Q.6 In an empty queue  
a) Front=0.                    b) Rear=0  
c) Both A & B                d) None of these
- Q.7 Processing the route first, then process the left sub tree and finally process the right sub tree.  
a) in-order traversal        b) pre-order traversal  
c) post order traversal      d) None of these
- Q.8 The operation of insertion of elements in stack is called:  
a) Push                        b) Pop  
c) Front                        d) Rear
- Q.9 Operation on binary search tree  
a) Insertion                    b) Deletion  
c) Searching                   d) All of the above
- Q.10 Arranging the elements in order is called  
a) Searching                   b) Sorting  
c) Merging                    d) None of these

**Section-B**

**Note: Objective type questions. All questions are compulsory. (10x1=10)**

- Q.11 Deletion operation in a stack is called\_\_\_\_\_.
- Q.12 An array may be a collection of similar data. (True/False)
- Q.13 Data Structure means\_\_\_\_\_.

- Q.14 What do you mean by merging of two arrays?
- Q.15 The symbol \* is called \_\_\_\_\_ operator.
- Q.16 Linked list is a linear collection of \_\_\_\_\_.
- Q.17 An example of non-linear data structure is \_\_\_\_\_.
- Q.18 Define the term sibling.
- Q.19 The top down structure can be viewed as \_\_\_\_\_ structure.
- Q.20 Name an example of an internal sort technique.

### Section-C

**Note: Short answer type Question. Attempt any twelve questions out of fifteen Questions. (12x5=60)**

- Q.21 Write a program to print factorial of a number using recursion.
- Q.22 Differentiate between linked list and array.
- Q.23 Explain the various types of data structures.
- Q.24 Write an algorithm to delete an element from array.
- Q.25 Differentiate between prefix and postfix expression.
- Q.26 When does overflow condition comes in data structure?
- Q.27 What is the limitation of a linear queue? How is it removed?
- Q.28 What are applications of tree?
- Q.29 Write an algorithm of PUSH an element into the stack.

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- Q.30 What is a binary tree? Name various operations defined for it.
- Q.31 Differentiate between sequential and binary search.
- Q.32 Write Short notes on  
a) applications of queue  
b) Priority queue
- Q.33 Discuss storage structure of queue in brief.
- Q.34 Discuss in brief the stack implementation.
- Q.35 Write an algorithm to insert a node in a binary search tree.

### Section-D

**Note: Long answer questions. Attempt any two question out of three Questions. (2x10=20)**

- Q.36 Explain various types of linked lists with examples.
- Q.37 What is searching? What are internal and external search methods? Explain various internal searches in brief?
- Q.38 Write short note on  
a) Structured programming  
b) Bubble sort.

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