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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) Heterogeneous
- 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 \_\_\_\_\_.

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- 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.

- 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.