

Sl. No. 100003



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GS-749

II Semester B.Voc. Examination, May/June - 2019

BVOC IT

**205 : Data Structure
(CBCS) (F+R) (2016-17 & Onwards)**

Max. Marks : 70

Time : 3 Hours

Instructions : Answer *all* sections.

SECTION - A

Answer **any 10** questions. Each question carries **2** marks.

10x2=20

1. What do you mean by non-linear data structure ? Give an example.
2. What is a pointer ? How it differs from an ordinary variable ?
3. What is time complexity ?
4. List out different types of linked lists.
5. What is a queue ? How it differs from stack.
6. What is an array ? Mention different types of arrays.
7. Mention the operations performed on Stack.
8. Define best case, worst case and average case analysis of an algorithm.
9. Define degree of a node in a graph.
10. What is Stack Underflow ? Write the Mathematical expression for Stack Underflow.
11. What do you mean by abstract data type ?
12. Define complete binary tree.

P.T.O.

**SECTION - B**

Answer **any 5** questions. Each question carries **10** marks.

5x10=50

- 13.** Explain the classification of data structure. Give an example for each type. **10**
- 14.** What are the differences between static memory and dynamic memory ? **10**
Explain malloc() and calloc() with suitable illustrations.
- 15.** (a) Explain binary search technique with an example. **5+5**
(b) Write a C program to sort N array elements using bubble sort.
- 16.** (a) Write an algorithm to insert a node at the beginning of the linked list. **6**
(b) Explain the comparison of singly linked list and doubly linked list. **4**
- 17.** (a) Explain array implementation of stack. **5+5**
(b) Explain Tower of hanoi problem with two discs.
- 18.** (a) Explain the different types of queues. **5+5**
(b) Write an algorithm for evaluation of postfix expression.
- 19.** Write a note on : **3+4+3**
(a) Binary tree
(b) Adjacency matrix of a Graph
(c) Left skewed and Right skewed tree
- 20.** (a) Define BST. Give an example. **4+6**
(b) Explain pre order, in order and post order tree traversal with an example.

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