



SM – 724

II Semester B.Voc. Degree Examination, May/June 2018  
(CBCS) (F+ R) (2016 - 17 & Onwards)  
INFORMATION TECHNOLOGY  
205 : Data Structures

Time : 3 Hours

Max. Marks : 70

**Instruction :** Answer all the Sections.

SECTION – A

Answer any ten questions. Each question carries two marks.

(10×2=20)

1. Define primitive data structure.
2. Give the disadvantages of recursion.
3. Write two examples of non linear data structure.
4. List two advantages of Linked list.
5. Define stock.
6. List the different types of queue.
7. What is malloc ?
8. Define space complexity of an algorithm.
9. What is a pointer ?
10. Define indegree and outdegree of a node.
11. What is stack underflow ?
12. Define directed graph.

P.T.O.



## SECTION – B

Answer any five questions. Each question carries ten marks.

(5×10=50)

13. Explain the different types of memory allocations with examples.
14. a) Explain asymptotic notations.  
b) Write an algorithm for sequential search and explain best case, worst case, average case efficiencies. (6+4)
15. a) What is dequeue ? Explain the variations of dequeue.  
b) Write an algorithm to insert and delete an element from circular queue. (5+5)
16. a) Write an algorithm to perform push and pop operations of stack.  
b) Write selection sort algorithm (5+5)
17. a) Convert the infix expressions to postfix expressions using stack  
 $Q = A + (B * C - (D | E \uparrow F) * G) * H$ .  
b) Write a procedure to evaluate the given postfix expression. (6+4)
18. a) Write an algorithm to sort elements using merge sort technique.  
b) Write an algorithm to insert an element at the beginning of Linked List. (5+5)
19. What is tree traversal ? Explain tree traversal techniques with examples.
20. Define the following terms with example.
- a) Complete binary tree. 2
  - b) Height of a tree. 2
  - c) Adjacent and incident vertices. 2
  - d) Terminal nodes. 2
  - e) Tree. 2