

Roll No.

Exam Code : J-21

Subject Code—51628

B. C. A. EXAMINATION

(Batch 2018 Onwards)

(Third Semester)

DATA STRUCTURES—I

BCA-232

Time : 3 Hours

Maximum Marks : 70

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory. All questions carry equal marks.

1. Define the following :

- (i) Data type.
- (ii) Algorithm complexity.
- (ii) Parallel array.
- (iv) Recursion.
- (v) Circular Linked List.
- (vi) Deque.
- (vii) Tree.

2×7=14

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P.T.O.

Unit I

2. Define elementary data organization. Explain the difference between primitive data structure and non-primitive data structure. 14
3. Define String. Also discuss its operations and write a pattern matching algorithm. 14

Unit II

4. What is an array ? Which operations can be performed on array ? Explain with example. 14
5. Define Header Linked List. What is the representation of linked list in memory ? Also write applications of linked list. 14

Unit III

6. Explain the stack with its operations. Convert the expression into Postfix $A + (B * C - (D / E \uparrow F) * G) * H$. 14
7. Describe the Priority queue with example. Also write an algorithm for insertion and deletion in Queue. 14

Unit IV

8. Explain binary tree with its representation including advantage and disadvantage. 14
9. What is Graph ? Write sequential and linked representation of graphs with examples. 14