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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech (CSE) (Sem.-3)

**DATA STRUCTURES & PROGRAMMING METHODOLOGY**

Subject Code : CS-207

Paper ID : [A0454]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**Answer briefly :**

1. Give examples of Linear and Non-Linear Data Structures.
2. What is the difference between a Stack and an Array?
3. Discuss applications of Linked Lists.
4. Distinguish between stack and queue.
5. Which are different ways of representing expressions?
6. What is garbage collection in data structure?
7. Give some applications of tree.
8. What is the main use of heap?
9. Define a cycle in a graph.
10. What are recursive procedures?

### **SECTION-B**

11. What are the types of queues? Explain with examples.
12. What do you mean by Link list? Write an algorithm to insert and delete a node in Singly Linked List.
13. Write an algorithm to convert infix expression to postfix expression by taking a suitable example.
14. Write the importance of hashing. Compare direct address tables with hash tables.
15. Which are the different ways of representing a graph?

### **SECTION-C**

16. What is Hash function? How linear probing is used to resolve collision in Hash Tables?
17. What is Circular Linked List? State the advantages and disadvantages of Circular link List Over Doubly Linked List and Singly Linked List.
18. How the files are used to organize the data, in data structure? Illustrate by taking example.