FACULTY OF ENGINEERING

B. E. (CSE) (AICTE) III – Semester (Main) Examination, December 2019
Subject: Data Structures & Algorithm

Time: 3 hours   **Max. Marks: 70**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (20 Marks)

1. Write about Dynamic Memory Allocation in C++.	2
2. What is Time Complexity of an Algorithm?	2
3. What is Encapsulation in Object Oriented Design?	2
4. List the Common Operations on a Data Structure.	2
5. What is Enqueue, Dequeue, Peak operation?	2
6. How a Graph is represented using Data Structure?	2
7. Define Hashing and give its advantages.	2
8. List Access Modifiers in C++.	2
9. Represent the given polynomial $6x^4 - 2x^2 + 6x - 10$ by a linked list.	2
10. State the application of Stacks.	2

PART – B (50 Marks)

11. (a) Explain in detail Templates in C++.	5
(b) Write a programe to explain Constructor and destructor in C++.	5
12. (a) Write the Stack ADT and its operations.	5
(b) Write about Asymptotic Notations. Give example for each.	5
13. (a) Write a programme to implement Queue using Arrays.	5
(b) Differentiate between DFS and BFS.	5
14. Explain in detail about Binary Tree and its Traversal Techniques.	10
15. (a) Write about Quick Sort and discuss its Time and Space Complexities.	5
(b) Explain the complexity of Heap-sort, construct Min-Heap for the sequence 10, 30, 5, 14, 45.	5
16. Explain in detail Single Linked list and its Algorithms for Traversing, Searching, insertion and deletion.	10
17. (a) Write short notes on Exception Handling.	3
(b) Write about Selection Sort.	3
(c) Write about time Complexity of Merge Sort and Quick sort.	4

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