

B.Sc.(IT) Semester - 2 (CBCS) Examination
March/April– 2019 (New Course)
Data Structure & File Structure using C(CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q – 1

(A) Attempt the following **03**

- 1) Tree is _____ type of data structure.
- 2) Sequential search is also called _____ search.
- 3) Which of the following algorithm design technique is used in the quick sort?

(B) Attempt the following (Any Two) **06**

- 1) Explain characteristics of a Data Structure.
- 2) Write an algorithm to sort an array using bubble sort.
- 3) What is array? What is structure? What is pointer?
- 4) Write a C function to search an element using binary search.

(C) Attempt the following (Any One) **05**

- 1) Explain different types of data structures.
- 2) Explain any five basic terminology of data structure.

Q – 2

(A) Attempt the following **03**

- 1) Full form of LIFO is _____
- 2) Stack is _____ type of data structure.
- 3) FCFS stands for _____

(B) Attempt the following (Any Two) **06**

- 1) Explain polish expression and reverse polish expression.
- 2) Write algorithms to push an element in a stack and pop an element from a stack.
- 3) Explain priority queue.
- 4) Write difference between stack and queue.

(C) Attempt the following (Any One) **05**

- 1) Write applications of stack.
- 2) Write C functions to insert an element in a queue and delete an element from a queue

Q – 3

(A) Attempt the following **03**

- 1) _____ function is used to deallocate memory.
- 2) In doubly linked list, previous pointer of first node contains _____.
- 3) _____ function is used when we want to change the size of previously allocated memory.

(B) Attempt the following (Any Two) **06**

- 1) Write an algorithm to insert node as first node in singly linked list.
- 2) Explain merging of linked list.
- 3) Write a c function to delete last node from singly linked list.
- 4) Explain dynamic memory allocation.

- (C) **Attempt the following (Any One)** 05
- 1) Explain applications of Linked List.
 - 2) Write an algorithm or C function to insert node at specific location in singly linked list.
- Q – 4**
- (A) **Attempt the following** 03
- 1) In a binary tree, a terminal node is also called _____ node.
 - 2) BFS stands for _____
 - 3) Root node in the tree has in-degree _____.
- (B) **Attempt the following (Any Two)** 06
- 1) Explain complete binary tree.
 - 2) Explain spanning tree.
 - 3) Write applications of trees.
 - 4) Explain shortest path.
- (C) **Attempt the following (Any One)** 05
- 1) Write algorithms or c functions for binary tree traversal.
 - 2) Explain graph traversal in detail.
- Q – 5**
- (A) **Attempt the following** 03
- 1) DOS stands for _____
 - 2) The individual item of information in a record is called _____.
 - 3) Full form of FAT is _____
- (B) **Attempt the following (Any Two)** 06
- 1) Write short note on File Allocation Table.
 - 2) Explain tree structured directory system.
 - 3) Explain sequential file organization.
 - 4) Explain field, record and file.
- (C) **Attempt the following (Any One)** 05
- 1) Explain hashing in detail.
 - 2) Explain disk space allocation.
