

B.Sc.(IT) Semester - 2 (CBCS) Examination
March/April – 2024 (As Per Syllabus Year-2018)
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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Que.1(A) Answer the following question. (03)

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

Que.1(B) Answer the following question. (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.

Que.1(C) Answer the following question. (Any one) (05)

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

Que.2(A) Answer the following question. (03)

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

Que.2(B) Answer the following question. (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 a difference between stack and queue.

Que.2(C) Answer the following question. (Any one) (05)

- (1) What is Circular Queue? Write a c function to insert an element into circular queue.
- (2) Write C functions to insert an element in a queue and delete an element from a queue.

Que.3(A) Answer the following question. (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.

- Que.3(B) Answer the following question. (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 single linked list.
 - (4) Explain dynamic memory allocation.
- Que.3(C) Answer the following question. (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.
- Que.4(A) Answer the following question. (03)
- (1) In a binary tree, a terminal node is also called _____ node.
 - (2) BFS stands for
 - (3) What is Root Node?
- Que.4(B) Answer the following question. (Any Two) (06)
- (1) Explain complete binary tree.
 - (2) Explain spanning tree.
 - (3) Write applications of trees.
 - (4) Explain shortest path.
- Que.4(C) Answer the following question. (Any one) (05)
- (1) Write algorithms or c functions for binary tree traversal.
 - (2) Explain graph traversal in detail.
- Que.5(A) Answer the following question. (03)
- (1) DOS stands for _____.
 - (2) The individual item of information in a record is called _____.
 - (3) FAT stands for _____.
- Que.5(B) Answer the following question. (Any Two) (06)
- (1) Write a short note on File Allocation Table.
 - (2) Explain tree structured directory system.
 - (3) Explain sequential file organization.
 - (4) Explain field record and file.
- Que.5(C) Answer the following question. (Any one) (05)
- (1) Explain hashing in detail.
 - (2) Explain disk space allocation.
