647510 **BIT2DscC101x** **Seat No :_____**

B.Sc.(IT) Semester - 2 (*CBCS*) Examination
March/April – 2025 (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.

Que.1 (A) Answer the following questions (03)

1) What is time complexity?
2) What is data management?
3) What is data item?

Que.1(B) Answer the following questions (ANY TWO) (06)

1) Explain primitive and non-primitive data types.
2) Explain linear and non-linear data structure.
3) What is structure? Explain its declaration and accessing structure member elements.
4) What is array? Explain types of array.

Que.1(C) Answer the following questions (ANY ONE) (05)

1) Explain selection sort method.
2) Explain binary search method.

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

1) What is peep operation is stack?
2) What is FIFO?
3) What is TOS?

Que.2(B) Answer the following questions (ANY TWO) (06)

1) What is Polish expression? Explain with example.
2) What is Reverse Polish expression? Explain with example.
3) What is circular queue? Explain its importance.
4) What is stack? Write down applications of stack.

Que.2(C) Answer the following questions (ANY ONE) (05)

1) Write down algorithm for push and pop operation of stack.
2) Write UDF for insert and display operation in queue.

Que.3(A) Answer the following questions (03)

1) What is dynamic memory allocation?
2) What is free ()?
3) What is singly link list?

Que.3(B) Answer the following questions (ANY TWO) (06)

1) Write down applications of link list.
2) What is doubly link list? Explain it.
3) What is circular link list? Explain it.
4) Write algorithm for delete first and delete last in singly link list.

Que.3(C) Answer the following questions (ANY ONE) (05)

1) Write UDF for insert at last and display in singly link list.
2) Write algorithm for delete first and delete last in doubly link list.

Que.4(A) Answer the following questions (03)

1) What is DFS?
2) What is BST?
3) What is shortest path?

Que.4(B) Answer the following questions (ANY TWO) (06)

1) Explain spanning trees.
2) Explain complete binary tree.
3) Explain binary tree traversal.
4) Write applications of tree.

Que.4(C) Answer the following questions (ANY ONE) (05)

1) What is Graph? Explain types of graph.
2) Explain binary tree.

Que.5(A) Answer the following questions (03)

1) What FAT?
2) What is NTFS?
3) What is index?

Que.5(B) Answer the following questions (ANY TWO) (06)

1) Explain file allocation table.
2) Explain hashing concept.
3) Explain indexed sequential files.
4) Explain MS DOS FAT file system.

Que.5(C) Answer the following questions (ANY ONE) (05)

1) Explain basic concept of file and file system.
2) Explain concept of field, record and file.

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