647510 **0303212C1010** **Seat No :_____**

B.Sc.(IT) Semester - 2 (*CBCS*) Examination
March/April - 2024 (As Per Syllabus Year-2016)
DATA STRUCTURE USING C LANGUAGE (CORE)

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

Instructions:

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

Que.1(A) Attempt following. (04)

(1) _____ is a special variable which hold the location of variable.
(2) static storage class member default initialize with _____ value.
(3) Automatic storage class member default initialize with _____ value.
(4) Multiple value stores within a single variable it is called _____.

Que.1(B) Attempt following. (Attempt Any One) (02)

(1) What is an array?
(2) What is Union?

Que.1(C) Attempt following. (Attempt Any One) (03)

(1) Explain Array of Pointer with an example.
(2) Explain Time and Space complexity.

Que.1(D) Attempt following. (Attempt Any One) (05)

(1) Explain storage classes in detail.
(2) Explain Dynamic allocation and de-allocation function with an example.

Que.2(A) Attempt following. (04)

(1) _____ searching always perform on sorted data.
(2) In _____ sorting technique compare nearby element until data arrange in proper order.
(3) In _____ sorting technique select lowest value and fill in proper place.
(4) BFS stands for _____.

Que.2(B) Attempt following. (Attempt Any One) (02)

(1) What is sorting?
(2) What is shortest path problem?

Que.2(C) Attempt following. (Attempt Any One) (03)

(1) Explain bubble sort with an example.
(2) Explain sequential search with an example.

Que.2(D) Attempt following. (Attempt Any One) (05)

(1) Explain bucket sorting with an example.
(2) Explain Graph traversal technique in detail.

Que.3(A) Attempt following. (04)

(1) FIFO stands for _____.
(2) Using _____ operation we remove element from stack.
(3) Using _____ operation we add an element from stack.
(4) Queue implements _____ method for their elements.

Que.3(B) Attempt following. (Attempt Any One) (02)

(1) What is recursion?
(2) What is Queue?

Que.3(C) Attempt following. (Attempt Any One) (03)

(1) Explain static stack push( ) and pop( ) operation.
(2) Explain evaluation of expressions using stacks in detail.

Que.3(D) Attempt following. (Attempt Any One) (05)

(1) Explain circular queue with an example.

(2) Write note on Priority Queue.

Que.4(A) Attempt following. (04)

(1) Linked list is a collection of _____.

(2) _____ linked list contain pointer to next and pointer to previous node.

(3) To access values of node then we use -> operator. (True/False)

(4) Linked list is a dynamic structure. (True / False)

Que.4(B) Attempt following. (Attempt Any One) (02)

(1) What is Linked list?

(2) List out types of Linked list.

Que.4(C) Attempt following. (Attempt Any One) (03)

(1) Explain insertion of a node at the end in doubly linked list.

(2) Explain applications of the linked list.

Que.4(D) Attempt following. (Attempt Any One) (05)

(1) Explain Singly linked list with suitable example.

(2) Explain Circular singly linked list with example.

Que.5(A) Attempt following. (04)

(1) Node without children is called _____.

(2) BST stands for _____.

(3) If each node in the tree has a maximum of two children, we say that the tree is a _____.

(4) In _____ tree traversal technique root access at last.

Que.5(B) Attempt following. (Attempt Any One) (02)

(1) What is the meaning of sibling?

(2) What are leaf and non-leaf nodes?

Que.5(C) Attempt following. (Attempt Any One) (03)

(1) Explain implementation of Binary Tree.

(2) What is height balanced tree? Briefly explain it.

Que.5(D) Attempt following. (Attempt Any One) (05)

(1) What is tree traversal? Explain tree traversal techniques with example.

(2) Explain types of Tree with its structure.

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