647510 **0305212C1010** **Seat No: _____**

B.C.A Semester - 2 (CBCS) Examination
March/April- 2018
CS-07 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) Answer the following questions. (04)

1. Which function is used to deallocate the memory?
2. The return data type of user define function should be _____, if function does not return any data.
3. When we want to create a pointer variable, _____ sign must be used before variable name.
4. In parameter passing by reference, the formal parameters must be prefixed with the symbol _____ in their declarations.

Que-1 (B) Answer the following questions. (ANY ONE) (02)

1. What is Union?
2. What is Structure?

Que-1 (C) Answer the following questions. (ANY ONE) (03)

1. What is dynamic memory allocation? Explain malloc() and calloc().
2. Explain Storage Classes.

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

1. What is Pointer? Explain Concept of Pointers.
2. What is as Array? Explain Concept of Multidimensional Array.

Que-2 (A) Answer the following questions. (04)

1. BFS stands for _____.
2. DFS stands for _____.
3. Graph is a _____ type of data structure. (Option: Linear or Non-Linear)
4. Linear search is also called.

Que-2 (B) Answer the following questions. (ANY ONE) (02)

1. List out different types of Searching and Sorting methods.
2. What is shortest path problem?

Que-2 (C) Answer the following questions. (ANY ONE) (03)

1. Explain minimal spanning tree.
2. Explain Binary Searching.

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

1. Explain Selection Sort method.
2. Explain Graph Traversal.

Que-3 (A) Answer the following questions. (04)

1. Stack is _____ type of data structure. (Option: Liner or Non-Linear)
2. Stack uses FILO technique. State whether statement is true or false.
3. When the PUSH operation is performed on the stack the value of TOS will be _____.
4. What is recursion?

Que-3 (B) Answer the following questions. (ANY ONE) (02)

1. Differentiate: Stack v/s Queue.
2. List out operations available on Stack.

Que-3 (C) Answer the following questions. (ANY ONE) (03)

1. Explain concept of Stack.
2. Differentiate: Linear v/s Non-Linear File organization.

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

1. What is Circular Queue? Explain it in detail.
2. What is Data Structure? Explain primitive and non-primitive data structure.

Que-4 (A) Answer the following questions. (04)

1. In doubly linked list to insert element at start, the previous pointer of newly added node would point to _____.
2. In doubly linked list each node contains _____ fields.
3. A doubly linked list facilitates list traversal in _____ direction. (Option: single or both)
4. In singly linked list implementation, a node carries information regarding _____ and _____.

Que-4 (B) Answer the following questions. (ANY ONE) (02)

1. What is Merging of Link list?
2. What is Reversing of Link list?

Que-4 (C) Answer the following questions. (ANY ONE) (03)

1. What is Circular Link List?
2. Write applications of Link List.

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

1. Write a functions to perform following operations on singly link list.
   a. Create
   b. Display
   c. Insert first
   d. Delete
2. Write an algorithm to perform following operations on doubly link list.
   a. Create
   b. Display
   c. Sort
   d. Search

Que-5 (A) Answer the following questions. (04)

1. List traversals of binary tree.
2. Node without children is called _____.
3. If each node in the three has a maximum of two children, we say that the tree is a _____.
4. BST stands for _____.

Que-5 (B) Answer the following questions. (ANY ONE) (02)

1. Define: Root node and Leaf node.
2. What is Complete Binary Tree?

Que-5 (C) Answer the following questions. (ANY ONE) (03)

1. Explain Binary Search Tree with suitable example.
2. What is Height Balanced Tree? Briefly explain it.

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

1. What is Binary Tree? Explain tree traversal.
2. Draw the Binary Tree or the following data and display its value in preorder, postorder and inorder..
   20, 5, 15, 17, 45, 10

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