

**B.Sc.(IT) Semester - 2 (CBCS) Examination****March/April- 2018****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.
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- Que-1 (A) Answer the following questions. (04)
- (1) List our four type of U.D.F. type.(Write down the list only)
  - (2) What is the range of unsigned int data type ?
  - (3) Define : Union
  - (4) Which operator used for access pointer to structure ?
- Que-1 (B) Answer the following questions.(any one) (02)
- (1) Explain array of pointer.
  - (2) Explain big-Oh notation.
- Que-1 (C) Answer the following question.(any one) (03)
- (1) Explain all types of array with example.
  - (2) Define : malloc ( ), calloc ( ), free ( )
- Que-1 (D) Answer the following question.(any one) (05)
- (1) Write a short note : Storage classes in details.
  - (2) Explain call by value & call by reference with example.
- Que-2 (A) Answer the following questions. (04)
- (1) Define : Null graph
  - (2) Define : undirected graph
  - (3) Give full form : DFS
  - (4) Define : searching technique
- Que-2 (B) Answer the following questions.(any one) (02)
- (1) What is graph ? Explain shortly.
  - (2) What is adjacency matrix ?
- Que-2 (C) Answer the following question.(any one) (03)
- (1) Write an algorithm of bucket sorting.
  - (2) Explain minimal spanning tree.
- Que-2 (D) Answer the following question.(any one) (05)
- (1) Write a program of binary search.
  - (2) Write a program of insertion sort.
- Que-3 (A) Answer the following questions. (04)
- (1) Define : prefix expression.
  - (2) Define : postfix expression.
  - (3) Give full form : LIFO
  - (4) Give full form : FIFO

- Que-3 (B) Answer the following questions.(any one) (02)  
 (1) What is recursion ? Explain it.  
 (2) What is deque ? Explain it.
- Que-3 (C) Answer the following question.(any one) (03)  
 (1) Write a program of dynamic stack with push( ), pop( ), display( ) operation.  
 (2) Write a program of circular queue with insert( ), delete( ), display( ) operation.
- Que-3 (D) Answer the following question.(any one) (05)  
 (1) Explain primitive & non-primitive data structure.  
 (2) Write a program of static stack with all operation.
- Que-4 (A) Answer the following questions. (04)  
 (1) Define : singly linked list  
 (2) Define : header linked list  
 (3) What is the important of NULL keyword in any type of linked list ?  
 (4) We can create linked list using pointer. True or False ?
- Que-4 (B) Answer the following questions.(any one) (02)  
 (1) What are the advantages of doubly linked list over singly linked list ?  
 (2) Write a short note : Applications of linked list.
- Que-4 (C) Answer the following question.(any one) (03)  
 (1) Write an algorithm of insert( ) function in header linked list.  
 (2) Write an algorithm of update( ) function in circular linked list.
- Que-4 (D) Answer the following question.(any one) (05)  
 (1) Write a program of singly linked list with following operation.  
 (1) create (2) display (3) insert first (4) delete last (5) count  
 (2) Write a program of doubly linked list with following operation.  
 (1) create (2) insert by position (3) delete first (4) search (5) display
- Que-5 (A) Answer the following questions. (04)  
 (1) What is tree ?  
 (2) Define : binary tree  
 (3) What is root node in tree ?  
 (4) What is leaf node in tree ?
- Que-5 (B) Answer the following questions.(any one) (02)  
 (1) Explain properties of tree.  
 (2) Give differentiate : parent node, child node, sibling.
- Que-5 (C) Answer the following question.(any one) (03)  
 (1) Explain height balanced tree.  
 (2) How can we perform insert operation in b-tree ?
- Que-5 (D) Answer the following question.(any one) (05)  
 (1) Draw binary tree for the following values.  
 20, 10, 43, 7, 18, 90, 80, 28, 110  
 Also write in-order, pre-order, post-order.  
 (2) Write a programme to create binary tree with all traverse operation.

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