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NBF-003-1042001 Seat No. _____

B. Sc. I.T. (Sem. II) (CBCS) Examination
April/May - 2017
CS-07 : Data Structure Using C Language

Faculty Code : 003
Subject Code : 1042001

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (a) Objective Questions : **4**

(1) With every use of a memory allocation function, what function should be used to dellocate memory which is no longer needed?

(2) We declare a function with _____ if it does not have any return type.

(3) In parameter passing by reference, the formal parameters must be prefixed with the symbol _____ in their declarations.

(4) When we create pointer to structure, _____ operator is useful to access member variable of structure.

(b) Attempt any one : **2**

(1) Define automatic and external storage class.

(2) Explain pointer arithmetic.

(c) Attempt any **one** : **3**

(1) What is pointer? Write down advantages of pointer.

(2) Explain union with example.

(d) Attempt any one : **5**

(1) Describe malloc(), calloc( ) and free().

(2) Explain two dimensional array with example.

2 (a) Objective Questions : **4**

(1) Bfs stands for _____.

(2) Merge sort uses which technique.

(3) Linear search also called _____

(4) List out graph traversal.

(b) Attempt any **one** : **2**

(1) What is bucket sort?

(2) What is binary searching?

(c) Attempt any **one** : **3**

(1) Explain selection sort with example.

(2) Explain shortest path problem.

(d) Attempt any **one** : **5**

(1) Write a program for insertion sort.

(2) Explain bubble sort with example.

3 (a) Objective Questions : **4**

(1) Stack uses FILO technique.
State TRUE or FALSE

(2) Queue uses LIFO technique.
State TRUE or FALSE

(3) Stack is a _____ data structure.

(4) When the push operation is performed on stack the value of TOS will be _____.

(b) Attempt any **one** : **2**

(1) What is queue?

(2) Define priority queue.

(c) Attempt any **one** : **3**

(1) Explain recursion using stack.

(2) Describe evaluation of expressions using stack.

(d) Attempt any **one** : **5**

(1) Write a program to perform push(), pop() and update() operation on stack.

(2) Write a program to perform insert() and delete() operation on Queue.

4 (a) Objective Questions : **4**

(1) In singly linked list implementation, a node carries information regarding _____ and _____.

(2) In doubly linked list to insert element at start, the previous pointer of newly added node would point to _____

(3) In doubly linked list each node contains _____ fields.

(4) In linked list element can be inserted at _____

(b) Attempt any **one** : **2**

(1) What is linked list?

(2) What is merging of linked list?

(c) Attempt any **one** : **3**

(1) Differentiate Singly and Doubly linked list.

(2) Write an algorithm for insert by position operation on singly linked list.

(d) Attempt any **one** : **5**

(1) Explain doubly linked list in detail?

(2) Write a program for create() , display() and search() operation on doubly linked list.

5 (a) Objective Questions: **4**

(1) Node without children called _____.

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

(3) List traversals of binary tree.

(4) bst stands for _____

(b) Attempt any **one** : **2**

(1) Explain properties of tree.

(2) Describe objectives of tree.

(c) Attempt any **one** : **3**

(1) Explain Tree traversal Techniques.

(2) Explain height balance tree.

(d) Attempt any **one** : **5**

(1) What is tree? Explain binary search tree in detail.

(2) Write a program to create binary tree.
