

**BACHELOR IN COMPUTER
APPLICATIONS****Term-End Examination****December, 2008****CS-62 : 'C' PROGRAMMING AND DATA
STRUCTURE***Time : 2 hours**Maximum Marks : 60*

Note : Question number 1 is compulsory. Answer any three questions from the rest. All algorithms should be written nearer to 'C' language.

1. (a) Using Quick sort method, sort the following sequence in descending order : **10**
07, 62, 54, 03, 94, 01, 100
What is the average run time complexity of the quick sort.
- (b) Define stack ? Implement PUSH and POP operations using pointers in 'C'. **10**
- (c) Write a program in 'C' to implement the following Binary Tree Traversals. **10**
(i) Inorder Traversal
(ii) Preorder Traversal
(iii) Postorder Traversal
Use recursion.

2. (a) Discuss the following file organisation methods w.r.t. the structure, operations like insertion of records, deletion of records, updation of records and retrieval : 5
- (i) Sequential files
 - (ii) Indexed files
- Give the applications of above two file organization techniques.
- (b) Write a program in 'C' to count : 5
- (i) Number of words in a given string
 - (ii) Number of vowels in a given string
3. (a) Write a program in 'C' to insert an element into singly linked list at : 6
- (i) Beginning of list
 - (ii) Middle of list
 - (iii) End of list
- (b) Explain the following parameter passing mechanisms to functions : 4
- (i) Call-by-value
 - (ii) Call-by-reference
4. (a) Compare the performance of the following sorting techniques : 4
- (i) Bubble sort
 - (ii) Merge sort

- (b) Write a program in 'C' to implement static and dynamic allocation for a STUDENT structure with following fields : 4

char name [10],

int marks and

long int mobile_no.

- (c) Compare structure and union. 2

5. Write short notes on the following : 5x2=10

- (a) AVL - Tree
- (b) Breadth First Search (BFS)
- (c) Circular Queue
- (d) Doubly Linked List
- (e) Binary Search Trees

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