

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Pre-Revised)**

Term-End Examination

00205

June, 2018

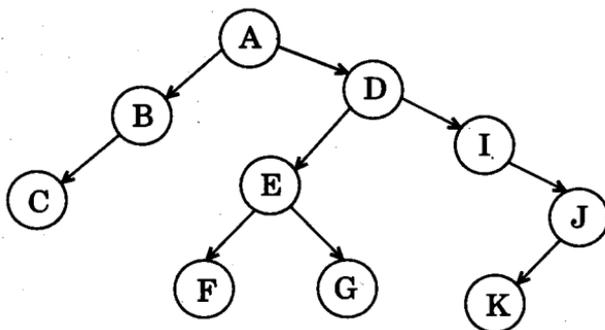
**CS-62 : 'C' PROGRAMMING AND DATA
STRUCTURES**

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 syntax.

1. (a) Find Inorder, Preorder and Postorder traversal for the following binary tree. 6



- (b) Write an algorithm to read any two floating point numbers from the user and display their product and quotient. 6
- (c) Write an algorithm to insert and to delete a node at a specified position in a singly linked list. 8
- (d) Explain the following parameter passing mechanism to functions using an example for each : 6
- (i) Call by value
- (ii) Call by reference
- (e) What is hashing ? Write its significance and advantages. 4
2. (a) Construct a binary search tree from the following given values. Assume the first value as the root value. 6
- 49, 35, 45, 23, 29, 90, 97, 3, 9
- (b) Apply quick sort algorithm to sort the following list of elements : 4
- 19, 03, 100, 17, 36
- Show all steps.
3. (a) Describe the stack data structure using an example. Also write the limitations of using an array for stack implementation. 5

- (b) Explain Direct File Organisation. State advantages and disadvantages of this file organisation. 5
4. (a) Write an algorithm for binary search. Also list the conditions under which linear search is preferred over binary search. 7
- (b) Define circular queue. What is the condition that a circular queue is full, if queue is implemented using array? 3
5. Write short notes on the following : $4 \times 2 \frac{1}{2} = 10$
- (a) AVL Tree
- (b) Sparse Matrix
- (c) B-Trees
- (d) Minimum Spanning Tree
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