

END TERM EXAMINATION

SECOND SEMESTER [BCA] MAY 2018

Paper Code: BCA 108

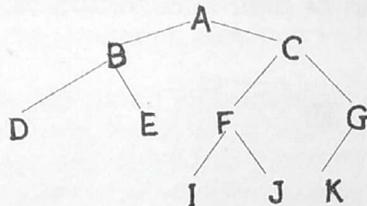
Subject: Data Structure Using C

Time : 3 Hours

Maximum Marks :75

Note: Attempt any five questions including Q. NO. [which is compulsory. Select atleast one question from each unit.

- Q1. a) Define data structures. In how many ways can you categorized data structures? Explain each of them.
- b) Perform selection sort on the following values
6, 55, 11, 10, 18
- c) Convert the following infix expression into postfix expression.
(A*B-C/D)+H
- d) Write the postorder traversal of the following tree.



- e) Explain the difference between a circular linked list and a singly linked list. **(5x5=25)**

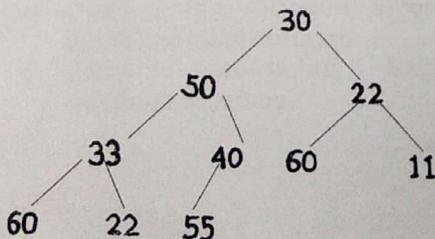
Unit-I

- Q2. a) Write a short note on different operations that can be performed on data structures. **(4.5)**
- b) Evaluate the following postfix expression using stacks. **(8)**
320, 10, *, 10, 60, 100, +, *, /
- Q3. a) Explain why circular queue is better than linear queue? Give examples. **(4.5)**
- b) Discuss D-queues and priority queues. What are the applications of stacks, queues, D-queues and priority queues? **(8)**

Unit-II

- Q4. a) Write a function to insert a node at the beginning of single linked list. **(4.5)**
- b) Write a function to delete a note from the end of double linked list. **(8)**
- Q5. a) A binary tree T has 09 nodes. The inorder & preorder traversals of T yield the following sequences of nodes. **(4.5)**
Inorder: D G B A H E I C F
Preorder: A B D G C E H I F.
Draw the tree T

- b) Consider the following binary tree T with with N=10 nodes. What is the inorder traversal of the tree? **(8)**



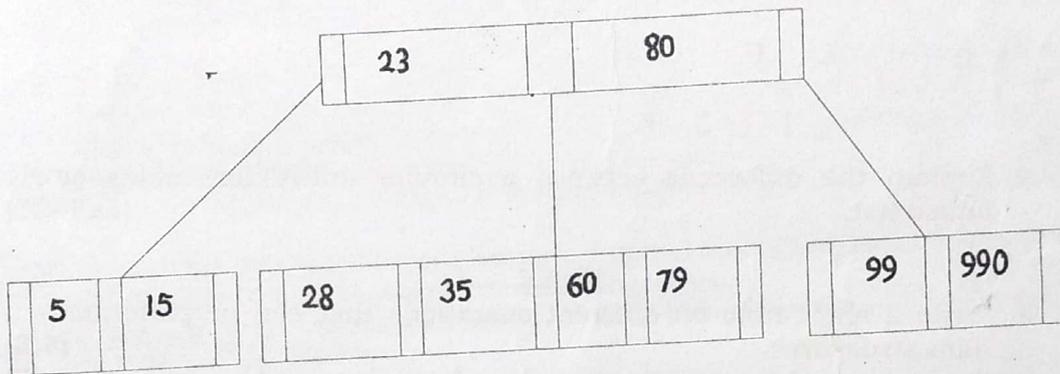
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Unit-III

- Q6. a) Construct B-tree of order 3 by inserting the following keys in the order shown. 18, 19, 6, 10, 40, 45, 5, 8. (4.5)
- b) Construct Binary Search Tree of the following keys in the order shown. 1, 2, 3, 15, 8, 25, 7, 9 (8)
- Q7. a) Construct an AVL search tree of the following values: 11, 20, 23, 5, 3, 7, 9, 6 (4.5)
- b) Insert the following values in the order of their occurrence 32, 34 in the given B tree of order 5. (8)



Unit-IV

- Q8. a) Define hashing. Why do we use hashing? Discuss any two hashing methods with example. (4.5)
- b) Which searching technique is best and under what conditions? Justify your answer with the help of an example. (8)
- Q9. a) Explain merge sort with example. (4.5)
- b) Which sorting technique is better and why? Explain with an example. (8)

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