

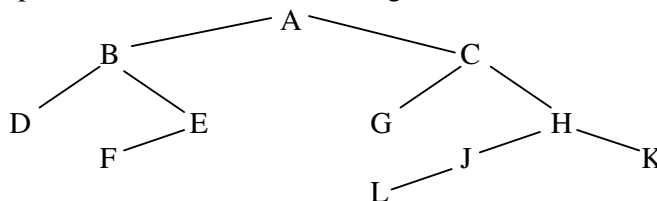
B. C. A. DEGREE EXAMINATION, APRIL 2008
SECOND SEMESTER

COURSE : MAJOR CORE
PAPER : ALGORITHMS AND DATA STRUCTURES
TIME : 3 HOURS MAX. MARKS: 100

SECTION - A

I CHOOSE THE CORRECT ANSWER: (20 x 1 = 20)

- _____ logic employs a number of conditions which lead to a selection of one out of several alternative modules.
a) selection b) sequence c) iteration d) none
- _____ is a data structure which has hierarchical relationship between various elements.
a) array b) list c) tree d) graph
- _____ is combining the records in two different sorted files into a single file.
a) inserting b) sorting c) merging d) none
- Bubble sort algorithm requires _____ passes for arranging numerical data in increasing order.
a) n-1 b) n c) n+1 d) none
- _____ is an algorithm of divide and conquer type
a) merge sort b) insertion sort c) quick sort d) none
- The condition which checks underflow in stack is _____.
a) TOP = MAXSTK b) TOP = 0 c) TOP = TOP + 1 d) TOP = TOP - 1
- A de-queue is a linear list in which elements can be _____.
a) added at either end b) removed at either end
c) added and removed at either end d) added and removed in the middle
- Binary Trees are said to be copies if they have _____.
a) same structure b) same structure and same content
c) same content d) none
- Binary Tree with internal and external nodes is called as _____.
a) Binary tree b) complete binary tree
c) Binary Search Tree d) extended Binary tree
- The post order traversal of the tree given below is _____



- a) ABDEFCGHJLK b) DBFEAGCLJHK c) DFEBGLJKHCA d) none

II. FILL IN THE BLANKS:

11. Data structures which has relationship between elements are _____ and _____.
12. _____ and _____ used by algorithm are the main measures for the efficiency of algorithm.
13. A node in the linked list contains _____ and _____.
14. Periodically collecting all the deleted space into the free storage list is called _____.
15. The maximum number of nodes in a branch of a tree is called as _____ of a tree.

III STATE WHETHER TRUE / FALSE;

16. An array is a collection of linear and heterogeneous data elements.
17. The complexity of searching algorithm is measured in terms of the number of comparisons required to find item in n elements.
18. Header linked lists are used for maintaining zero polynomial in memory.
19. Queue may also be represented as a one way list.
20. Siblings of a tree have different parents.

SECTION – B**(8 x 5 = 40)****ANSWER ANY EIGHT OF THE FOLLOWING:**

21. How to determine the complexity of algorithms.
22. Explain conditional flow structure with an example.
23. Write an algorithm to sort N elements in ascending order using bubble sort.
24. Write an algorithm to generate Fibonacci series.
25. What is header linked list? Explain the types of header linked list.
26. Discuss about garbage collection in memory management.
27. How to insert an element in a queue using pointers.
28. Write an algorithm to implement stack operations.
29. Explain the linked representation of binary trees with an example.
30. Explain with an example the search and insertion algorithm of binary search trees.

SECTION – C**(4 x 10= 40)****ANSWER ANY FOUR OF THE FOLLOWING:**

31. Explain in detail, the steps involved in developing an algorithm.
32. Explain quick sort algorithm with an example.
33. What is searching? Explain binary search algorithm with an example.
34. Explain insertion and deletion procedure in a single linked list.
35. Explain the enqueue and dequeue operations using arrays with boundary conditions.
36. Explain different traversing methods of binary tree.
