K20U 1346

Reg. No. : .....

Name : .....

III Semester B.C.A. Degree (CBCSS – Sup./Imp.) Examination, November 2020
(2014 – '18 Admns)
General Course
3A12 BCA : DATA STRUCTURE

Time : 3 Hours Max. Marks : 40

SECTION – A

1. **One** word answer : **(8×0.5=4)**
   a) The notation _____ is the formal way to express the lower bound of an algorithm's running time.
   b) Quick sort algorithm follows _____ programming approach.
   c) _____ method check if stack is full.
   d) _____ is an example for application of BST.
   e) Binary search is a fast search algorithm with run-time complexity of
   f) _____ method remove (access) an item from the queue.
   g) _____ is a linear data structure which is used to maintain a list in the memory.
   h) _____ is an example for non-linear data structure.

SECTION – B

Write short notes on **any seven** of the following questions : **(7×2=14)**

2. What is apriori analysis ?
3. Write recursive algorithm for calculating factorial of a number.
4. What is the time complexity of selection sort ?
5. Explain the methodology of merge sort.

P.T.O.

6. What is circular queue ?
7. What are the advantages of Circular Linked List ?
8. What is priority queue ?
9. Write an algorithm to add two sparse matrices.
10. What is head node ?
11. Write recursive algorithm for inorder traversal.

SECTION – C

Answer **any four** of the following questions : (4×3=12)

12. Explain time complexity with notations.
13. Explain polynomial representation using array.
14. Write the algorithm for Binary Search.
15. What is Doubly Linked List ? Write down its advantages.
16. Write the algorithm for preorder and postorder traversals.
17. Explain the applications of BST.

SECTION – D

Write an essay on **any two** of the following questions : (2×5=10)

18. Write the algorithm of quick sort.
19. What is queue ? Explain its types.
20. Write algorithms of following :
    a) Add new node at the end of LL
    b) Delete a node at the beginning of LL
    c) LL Traversing.
21. What is Binary Search Tree ? Explain its operations.