SS – 691

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III Semester B.C.A. Degree Examination, November/December 2018
(Y2K8 Scheme) (Repeaters)
COMPUTER SCIENCE
BCA 305 : Data Structures Using C

Time : 3 Hours Max. Marks : 60/70

Instructions : *1) Answer **all** the Sections.*
*2) Section – **D** is applicable only to students who have taken admission from **2011 – 12** and onwards.*

SECTION – A

I. Answer **any 10** questions. **(10×1=10)**

1) Define Dequeue.

2) Mention the operations on primitive data structures.

3) Give the disadvantages of Linear search.

4) Define BST.

5) What is full binary tree ?

6) Write any 2 applications of recursion.

7) What is Garbage collection ?

8) What is the use of calloc ( ) ?

9) What are internal nodes ?

10) What is depth of a binary tree ?

11) What is LIFO ?

12) What is a string ?

P.T.O.

SECTION – B

II. Answer **any 5** questions. **(5×3=15)**

13) Explain the properties of Binary Trees.

14) Write a program to find first 10 terms of Fibonacci series.

15) What is linked list ? Write an algorithm to find length of linked list.

16) Write the advantages of dynamic memory allocation over static memory allocation.

17) What is Priority Queue ? Explain.

18) Explain Doubly Linked List.

19) Differentiate between call-by-value and call-by-reference.

20) Explain insertion sort with an example.

SECTION – C

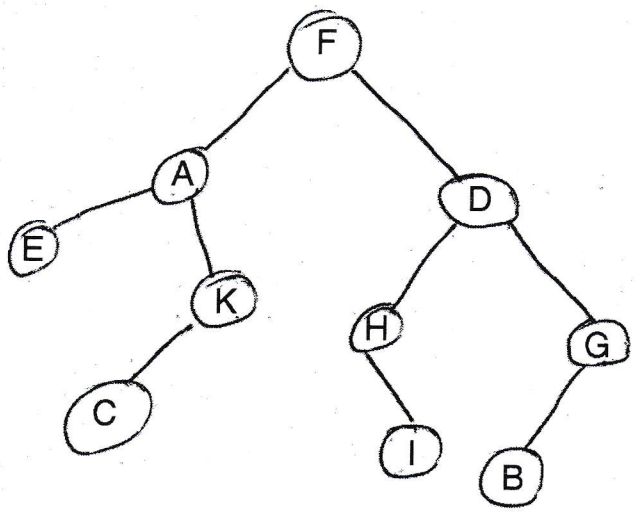
III. Answer **any 5** questions. **(5×7=35)**

21) Write an algorithm to sort n elements using insertion sort.

22) Write an algorithm to insert a node in the middle and delete a node from the beginning of a singly linked list.

23) Write an algorithm to search for an element using binary search.

24) What is tree traversal ? Traverse the following tree.



25) Construct a binary search tree for the following :
40, 60, 50, 33, 55, 11, 18, 8.

26) Write an algorithm to insert and delete from circular Queue.

27) Explain classification of data structures.

28) Write an algorithm to convert infix expression to postfix expression.

SECTION – D

IV. Answer **any one** question. **(1×10=10)**

29) Write an algorithm to implement Quick sort Trace the algorithm for
38, 65, 91, 71, 3, 129, 83, 112, 168.

30) What is Graph traversal ? Explain DFS & BFS for the following graph.