Paper Code : 21313

F-413

B.C.A. (IIIrd Semester)

Examination, 2019-20

(New Course)

DATA STRUCTURES USING C

Paper-BCA-303-N

Time : 3 Hours] [Maximum Marks : 70

***Note* :-** Attempt any *five* questions. All questions carry equal marks.

1. (a) What is data structure ? Discuss the different types of data structures with features.
   (b) What is Stack ? Write an Algorithm to implement stack using linked list.
2. (a) Explain why circular queue is better than linear queue.
   (b) Write a function to delete a node from beginning of double linked list.
3. (a) Write a recursive function to count number of nodes in tree.
   (b) Convert the following infix expression into postfix expression.

   (A + B - C * D)/H
4. (a) Compare Selection sort and Merge sort.
   (b) Define Hashing. Discuss any *two* hashing methods with example.
5. (a) Explain height balance tree and AVL tree with suitable example.
   (b) Explain the concept of asymptotic notations.
6. (a) Construct a binary tree for the following inorder traversal :

   B G H D A E C I J K F J
   (b) Explain Overflow and Underflow condition on stack.
7. (a) What is BST ? Explain algorithm for insertion in BST.
   (b) What is Graphs ? Explain Multigraphs and Directed Graphs.
8. Explain any *four* of the following :
   (a) D-queue and Priority queue
   (b) Doubly Linked list
   (c) Tower of Hanoi problem with *three* disc
   (d) Sequential and Binary Search
   (e) Sparse Matrix.