Q.P. Code : 25135

Second Semester B.Voc. (IT) Degree Examination, May/June 2019

(CBCS Scheme)

Computer Science

DATA STRUCTURES

Time : 3 Hours] [*Max. Marks : 70*

Instructions to Candidates : Answers any **TEN** *questions from Part A and any* **FIVE** *questions from Part B.*

PART – A

1. Answer any **TEN** questions. Each question carries **2** marks : (10 × 2 = 20)

   (a) List various operations on data structures.

   (b) Define Big Ω notation.

   (c) List various operations on strings.

   (d) How can an element be deleted from an array?

   (e) Discuss the time complexity of selection sort.

   (f) What are multidimensional arrays? How are they stored in memory?

   (g) Write a short note on polish notation.

   (h) List few applications of queues.

   (i) Discuss the functions of memory allocation.

   (j) Show the memory representation of a double linked list.

   (k) Define : (i) Degree of a node (ii) Path

   (l) Define : (i) Depth of a tree (ii) Complete Binary tree.

PART – B

Answer any **FIVE** questions. Each question carries **10** marks : (5 × 10 = 50)

2. Discuss in detail the classification of data structures.

3. With a diagram explain the general ADT model.

4. Give an algorithm for Binary Search and trace it for the following data :

   9, 18, 27, 36, 45, 54, 63, 72, 81, 90   key = 72

5. With an illustration and an algorithm explain the solution for towers of Hanoi.

6. With an algorithm to implement a circular queue.

7. Discuss the various strategies of deleting a node from a singly linked list.

8.
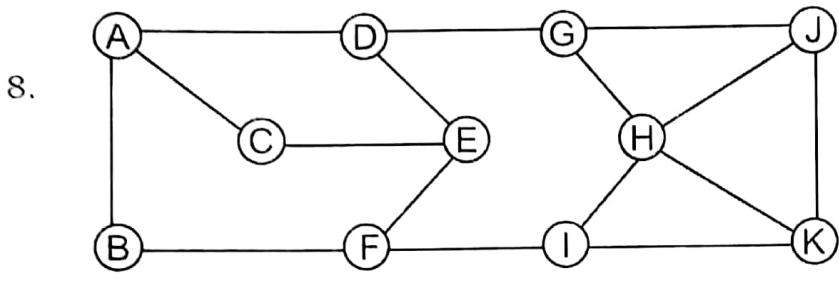
   Give the DFS and BFS traversal order for the above graph.

9. With an illustration explain inserting and deleting a node into a binary search tree.

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