

PE-649
M.Sc. I.T. (2nd Semester)
Examination, Jun-2022
Paper-

Name/Title of Paper-Data Structures
Time : Three Hours]

[Maximum Marks : 80
[Minimum Pass Marks : 29

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

खण्ड / Section-A

Attempt the following questions:-

1x10=10

(very short answers type questions)

- a- What is the efficiency of the algorithm?
- b- How many pointers needed in a node of circular doubly linked list.
- c- What is dequeue?
- d- How many moves are required to shift N Disc in tower of Hanoi problem-----.
- e- Write the difference between height & Depth.
- f- What is the time complexity of heap sort?
- g- Which data structure is used to find the DFS of the given graph.
- h- What is the balance factor in AVL tree?
- i- What is chaining as a collision resolution technique?
- j- What is the complexity of radix sort algorithm?

2- Answer the following questions

2X5=10

- 1- What operations can be performed on doubly linked list unit.
- 2- Convert the following INFIX expression to equivalent postfix expression- $A*B/C-D+E/F-G+H$
- 3- What is predecessor and successor in binary tree?
- 4- What is the use of weighted graph?
- 5- What is external sorting?

SECTION-B

Q. 1 What is array? How can we represent an array in memory? Explain the process of finding the location of any element of the two dimensional array.

Or

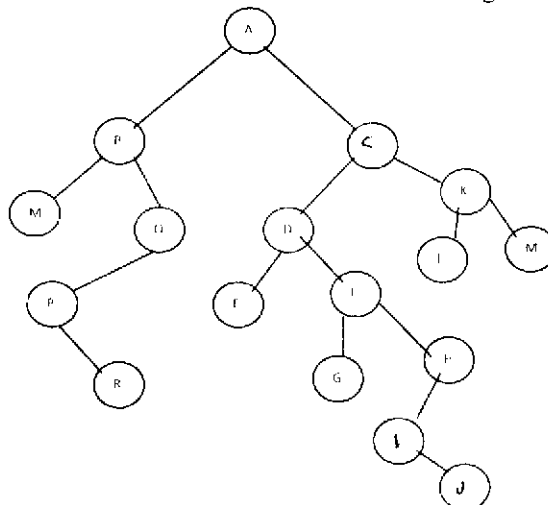
What is ----- like list? Write an algorithm to even element in doubly linked list better the given position.

Q- 2 what is polish notation? Explain their types and connection of any one notation to another notation with suitable example and algorithm.

Or

what is queue? Write an algorithm to implement delete operation. When it is represented.

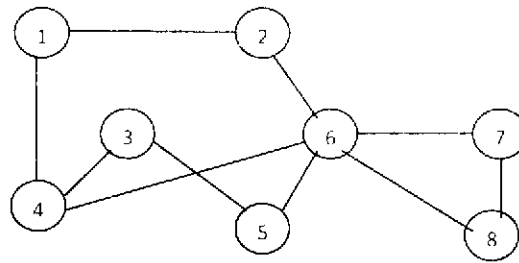
Q-3 What is tree traversal? Find out all the tree traversals from the given tree-



Or

What is BST? Explain the operations of BST with suitable example.

Q-4 What is graph? How it can be represented? Find out all the following graph.



Or

What is Krushal algorithm? Explain the working of Krushal algorithm with suitable example.

Q- 5 What is Husking? Explain different types of coalition resolution. Techniques with suitable example.

Or

What is sorting? Explain merge sort algorithm with suitable example.