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Total No of Overtions		

Total No. of Questions: 07]

[Total No. of Pages: 02

BCA (St m. - 2nd) DATA STRUCTURES

SUBJECT CODE : BC - 204 (N2)

<u>Paper ID</u>: [B0208]

[Note: Please fill subject code and paper ID on OMR]

Time: 03 Hours
Instruction to Candidates:

Maximum Marks: 60

- 1) Section A is Compulsory.
 - 2) Attempt any Four questions from Section B.

Section - A

Q1)

 $(10 \times 2 = 20)$

- a) What is a big O notation?
- b) What is a top pointer of stack?
- c) What is a post order traversal?
- d) What is the difference between data and information?
- e) What is the complexity of linear search?
- f) What is a threaded binary tree?
- g) What are the front and rear pointers of queue?
- h) What is need for garbage collection?
- i) What is an algorithm?
- j) How binary tree is represented as an doubly link list

Section - B

 $(4\times10=40)$

Q2) Suppose the names of few students of a class are as below:

Ram

Sham

Mohan

Sohan

Vimal

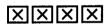
Komal

J-330 [8129]

P.T.O.

It is assumed that the names of the students is represented as a single link list. Write an algorithm to insert the name of a student RAMAN between Sham and Mohan. Represent it graphically also.

- (03) What is the postfix and prefix representation of the following expression (A*(b+c))+(b/d)*a+z(a + (b + c* (d + e))) + f
- Q4) What are the various operations possible on stacks. Explain the algorithm for each of them?
- Show the result of inserting 6, 3, 5, 8, 12, 15, 18, 19, 20, 24 into an empty *O5)* binary search tree.
- Q6) What are the various binary tree traversal techniques? Discuss with example and algorithm.
- **Q7)** Suppose a sequence of numbers is given like: 5, 1, 6, 7, 9, 22, 10, 55, 45, 34, how this numbers will be sorted in
 - (a) Insertion sorting.
 - (b) Bubble sorting.
 - (c) Quick sorting.



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