

Seat
No.

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BII1310

Data Structure & Files (New) (1080)

P. Pages : 3

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** sub questions from each unit.
5. Draw neat diagrams wherever necessary.
6. Figures to the right indicate full marks.
7. Assume suitable data wherever necessary.

UNIT - I

1. a) Write and explain algorithm for conversion of Infix Expression to Prefix Expression. Also justify the same with following example. 10
$$A + B * C / D$$

b) Explain the data structure for Queue, along with it's implementation details of Insert and delete functions. 10
c) Write short notes on : 10
 - i) Use of stack in recursive function call.
 - ii) Drawbacks of linear Queue and concept of Circular Queue.

UNIT - II

2. a) Write and explain the algorithm for inserting new value / node 35 into the following sorted linked list. 10
Start

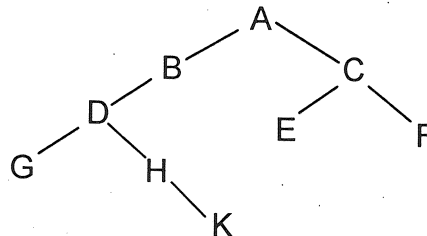
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graph LR; Start --> 10[10]; 10 --> 20[20]; 20 --> 30[30]; 30 --> 40[40]; 40 --> 50[50 X];
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b) i) Draw and explain two - way circular Header list with at least 5 nodes. 5
ii) Explain the algorithm for traversing the linked list and counting the number of nodes in a linked list. 5

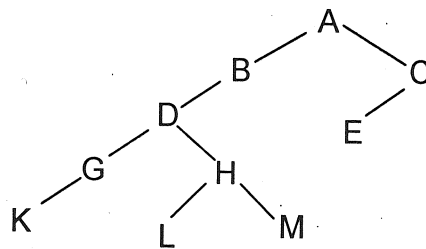
- c) Write and explain the procedures for Push and Pop functions of linked stack. Also state advantages. 10

UNIT - III

3. a) Write and explain non - recursive algorithm using stack for preorder traversal of binary tree. Justify the same with following example. 10



- b) i) Explain two - way inorder threading of binary tree. 5
- ii) Explain Huffman algorithm with example. 5
- c) Write and explain non - recursive algorithm using stack for postorder traversal of binary tree. Justify the same with following example. 10



UNIT - IV

4. a) i) Explain Radix sort with suitable example. 5
- ii) Explain selection sort with suitable example. 5
- b) Explain the problem of collision. How to resolve the collision by linear probing. Suppose the table T has 11 memory locations T[1], T[2],.....T[11] and suppose file f consists of 8 records p, q, r, s, t, u, v and w with following hash addresses.

Record :	p	q	r	s	t	u	v	w
H (k) :	4	8	2	11	4	11	5	1

Suppose the 8 records are entered into the table T in the above order. Then resolve the collisions using linear probing. show the table with addresses and respective records diagrammatically.

10

c) i) Explain chaining with Hash table.

5

ii) Explain Bubble sort with example.

5

UNIT - V

5. a) Explain Inverted files with suitable example. Also state its need, advantages and disadvantages.

10

b) Explain Relative files with primitive operations, description and organization, advantages & disadvantages.

10

c) Explain multilist files with suitable example. Also state its need, advantages and disadvantages.

10
