



RF-3961-62

B. Sc. (I.T.) (Sem. - III) (ATKT) Examination
April / May - 2010
Data Structures

Time : 3 Hours]

[Total Marks : 70

RF-3961

Instructions :

नीचे दशांशके निशानीवाणी विगतो उत्तरवही पर अवश्य लिखनी. Fillup strictly the details of signs on your answer book. Name of the Examination : B. Sc. (I.T.) - (SEM. - 3) (ATKT) Name of the Subject : DATA STRUCTURES Subject Code No. : 3 9 6 1 Section No. (1, 2,.....) : 1	Seat No. : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Student's Signature
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- 1 Answer the following questions in brief : (any six) 12
 - (i) What is polish notation?
 - (ii) Why circular queue is better than simple queue?
 - (iii) What do you mean by **P ?
 - (iv) What is reverse linked list?
 - (v) Explain 3D array.
 - (vi) Which data structure the compiler is using in evaluating the expression?
 - (vii) Convert $(P + Q) / (B - C)$ into prefix.

- 2 (a) Write an algorithm to pop an element from stack. 3
- (b) Answer the following questions in detail (any three) 12
 - (i) Explain the tower of Hanoi with respect to stack with an example.
 - (ii) Perform the binary search with proper steps to search 15
2,6,8,15,20,22,30,40,70,100
 - (iii) Explain row major and column major order of array traversal.
 - (iv) What is double ended queue? What are the different types?

- 3 (a) Explain various applications of queue data structure in Computer Science? 4

- (b) What is the difference between static memory allocation and dynamic memory allocation? Linked list is following which concept? 4

OR

What is divide and conquer technique? Explain with example.

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<input type="text" value="B. Sc. (I.T.) - (SEM. - 3) (ATKT)"/>	<input type="text" value="Student's Signature"/>
Name of the Subject :	
<input type="text" value="DATA STRUCTURES"/>	
Subject Code No. : <input type="text" value="3"/> <input type="text" value="9"/> <input type="text" value="6"/> <input type="text" value="2"/>	Section No. (1, 2,.....) : <input type="text" value="2"/>

- 4 Answer the following questions (any three) 15
- (i) Write an algorithm for performing inserting at various position in doubly linked list.
 - (ii) Create max-heap tree on following data set
20, 15, 5, 50, 40,12,22,6,9
 - (iii) Perform bubble sort in ascending order:
25,2,4,67,50,15,3,9,17,8
 - (iv) Explain AVL tree.
- 5 (a) Explain root node, height, leaf node, intermediate node of binary tree. 4
- (b) What is sequential file organization? 4
- OR
- (b) What is hash file organization?
- 6 Answer the following questions in brief : (any four) 12
- (i) What is priority queue? How to implement priority queue?
 - (ii) How data is stored in singly linked list with respect to memory?
 - (iii) What is in-order and pre-order traversal of binary tree?
 - (iv) What is Big-oh notation? How to calculate time complexity?
 - (v) What is threaded binary tree?