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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 :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
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. :

Student's Signature

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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Name of the Examination :

☛ **B. Sc. (I.T.) - (SEM. - 3) (ATKT)**

Name of the Subject :

☛ **DATA STRUCTURES**

☛ Subject Code No. : **3 9 6 2** ☛ Section No. (1, 2,.....) : **2**

Seat No. :

Student's Signature

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 tranversal of binary tree?

(iv) What is Big-oh notation? How to calculate time complexity?

(v) What is threaded binary tree?
