D 20625-A (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, OCTOBER 2011

CS/IT 09 303/PTCS 09 302—DATA STRUCTURES

(2009 admissions)

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*

Each question carries 2 *marks.*

1. What is time complexity of following function :

```
sum [int arr [ J ]
{
int i ; sum = 0 ;
for (i = 1 ; i <= n; i = i + 1)
    sum = sum + arr [i] ;
}
```

2. Give the prefix expression of the expression :

$(a-b)*(c+d)/e+f.$

3. What is time complexity to delete a node in double linked list ?
4. What is AVL tree ?
5. Define Hash function.

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

Each question carries 5 *marks.*

1. Calculate the address of X [4, 3] in a two-dimension array X[1 – 5, 1 – 4] stored in row major order. Assume the base address to be 1000 and that each element requires 4 words of storage.
2. Write down the algorithm for deletion operation performed on the circular queue.
3. Traverse the following binary tree into preorder and inorder :