

**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.

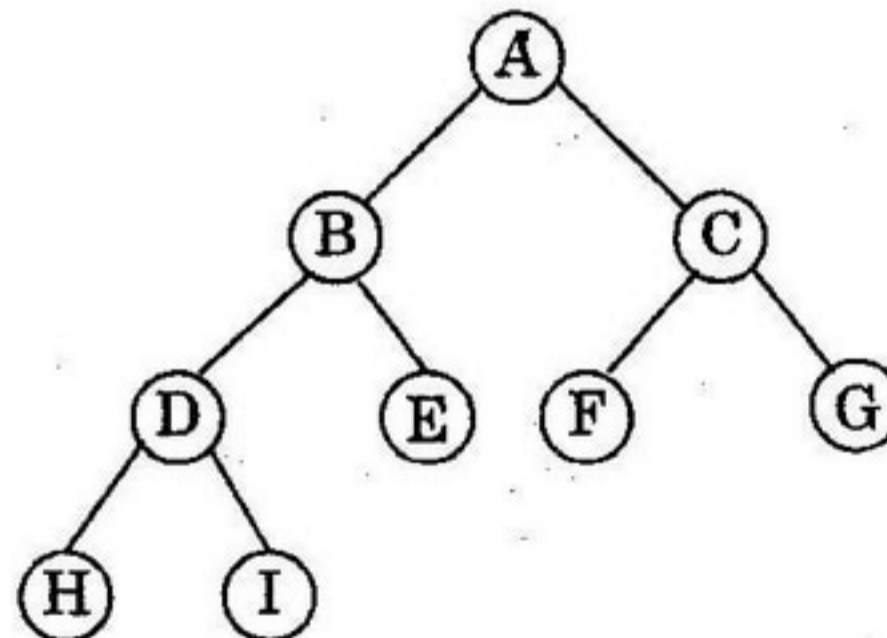
(5 × 2 = 10 marks)

**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 :



**Turn over**