Quiz3 **BESE15B** **Dated: 11 May 2010**

Q1: Write the output of the following:

```
void fun1(int &, int *);
int fun2(int &, int);

void main()
{
     int i=1;
     int j=2;
     int k;
     int z[3]={1,2,3};
     fun1(i,z);
     k=fun2(i,j);
     cout<<i<<j<<k<<z[0]<<z[1]<<z[2]<<endl;
     getch();
}

void fun1(int &m, int k[])
{
     k[++m]--;
     k[m]++;
}
int fun2(int &n, int m)
{
     n+=m;
     return n;
}
```

Q2: Write a function **`func()`** that takes as argument the size of an int array and allocates an array of this size dynamically. The function sets all elements of the array to 0 and returns a pointer to the array. Write down the code to deallocate the array. Where should this array be de-allocated (in main or in the function **`func()`**) ? If it should be de-allocated in the **func(),** where should the deallocation statement come?

Q3: Consider the following allocations:

```
string *p1 = new string("one"); // Line 1
string *p2 = new string("two"); // 2
p2 = new string("three"); // 3
p2 = p1; // 4
delete p2;     // 5
```

Indicate, on which lines, a **memory leak** occurs or a **dangling pointer** is created. Explain briefly why each of these situations arises.