

## Sheet 4 (Pointers)

### Problem 1

```
// Computers & control Engineering Dept. - First Year Students
// Computer Programming(2) - Second Term - 2011/2012
// This program used to define Call by value to a function

#include <iostream.h>
int Area(int n)
{
    return n*n;
}
void main( )
{
    int x;
    cout<<"Enter the length x: ";
    cin>>x;
    cout<<"The Area of the square is: "<<Area(x)<<endl;
}
```

### Problem 2

```
// Computers & control Engineering Dept. - First Year Students
// Computer Programming(2) - Second Term - 2011/2012
// This program used to define Call by reference to a function

#include <iostream.h>
void Area(int *nptr)
{
    *nptr=*nptr * *nptr;
}
void main( )
{
    int n;
    cout<<"Enter the length n: ";
    cin>>n;
    Area(&n);
    cout<<"The Area of the square is: "<<n<<endl;
}
```

### Problem 3

```
// Computers & control Engineering Dept. - First Year Students
// Computer Programming(2) - Second Term - 2011/2012

#include <iostream.h>
void main( )
{
int x;
char y;
double z;
int *xptr;
char *yptr;
double *zptr;
xptr=&x;
yptr=&y;
zptr=&z;
cout<<"The original address for x: "<<xptr<<endl;
xptr++;
cout<<"The next address after x: "<<xptr<<endl;
cout<<"The original address for y: "<<yptr<<endl;
yptr++;
cout<<"The next address after y: "<<yptr<<endl;
cout<<"The original address for z: "<<zptr<<endl;
zptr++;
cout<<"The next address after z: "<<zptr<<endl;
}
```

### Problem 4

```
// Computers & control Engineering Dept. - First Year Students
// Computer Programming(2) - Second Term - 2011/2012
// This program used to get show the difference between (*iptr)++ and
*(iptr++)
#include <iostream.h>
void main( )
{
int i=10;
int *iptr;
iptr=&i;
cout<<"i= "<<*iptr<<endl; //print the value of i =10
cout<<iptr<<endl; //print the address of i

(*iptr)++; //data inside the address is
incremented by 1
cout<<*iptr<<endl; //it prints 11
```

```
iptr++; //the address is incremented
by one unit (4 for int)
cout<<*iptr<<endl; //and then obtain the data inside the
new address
}
```