## ESC101 : Fundamental of computing

Quiz 1(A)Solution Marks=10 25 September, 2008

In case some tutor made any announcement contrary to what is mentioned in quiz paper, he has to grade the quiz of his section according to his announcement.

Question 1 (each blank carries 0.5 marks)

Fill in the blanks the following method IsNotPrime whose parameter is a positive integer of type long, and it returns true if the number is not prime, and returns false if the number is prime.

```
public static boolean IsNotPrime(long n)
{    long t = 2 ;
    boolean flag = false ;
    while(t*t<= n && flag==false)
    {       if(n%t==0) flag = true;
            t = t+1;
        }
        if(n>1 && flag==false) return false;
        else return true;
    }
```

**Question 2** We want to create a class Box. The attributes of a box are its length breadth and width. It should have two constructors :

Box(double x) : should construct a Box with length, breadth and width equal to x. Box(double x, double y, double z) : to construct a box with length x, breadth y, and width z. **Note :** you may assume that this constructor is called with appropriate arguments such that the resulting box has length greater than or equal to both its breadth as well as its width. You have to design a method Area() which returns the surface area of the current box. You also want to design the following method : CanbeEnclosedBy(Box B) which should return true if the current box can be enclosed by box B completely. Please fill in the blanks the following description of class. You have to ensure that once a Box is created it should be possible to change its length, breadth and width by some method in any class to which class Box is accessible.

```
public class Box
{ public double length;
  public double breadth;
  public double width;
  public Box(double x)
                           {length=x; breadth=x; width=x; }
  public Box(double x, double y, double z)
  ſ
       length=x; breadth=y; width=z;
                                         }
  public double Area() {return(2*(length*breadth + width*(length+breadth)))}
  public boolean CanbeEnclosedBy(Box B)
    if(length < B.length && (breadth < B.breadth && width < B.width ||
                             breadth < B.width && width < B.breadth))</pre>
         return true;
    else return false;
  }
}
```

Marking scheme : The method CanbeEnclosedBy() carries 2 marks, and each of the remaining blanks has 0.5 mark each.)

It is fine if you use  $\leq$  instead of  $\leq$  in the method CanbeEnclosedBy() above. But you will be given just one mark if you wrote either

(length < B.length && breadth < B.breadth && width < B.breadth)
or
(length <= B.length && breadth <= B.breadth && width <= B.breadth)</pre>