ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION **WINTER SEMESTER, 2012-2013**

DURATION: 1 Hour 30 Minutes **FULL MARKS: 75**

CSE 4301: Object Oriented Programming

Programmable calculators are not allowed. Do not write anything on the question paper.

There are **4 (four)** questions. Answer any **3 (three)** of them.

Figures in the right margin indicate marks.

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1. a) "Class is the blueprint of objects"- Explain. 7

   b) Briefly discuss on *"function overloading"*. A function named add(), adds two integer numbers and displays the sum. The function returns the sum also. Overload the function so that we can call it in any of the following way: 12

      i. add(3**,** 2);
      ii. add(**"**123**",** **"**522**"**);
      iii. add(**"**123**",** 10);

   c) What is *"constructor"* and *"copy constructor"*. Explain with example how copy constructor works. 6

2. a) Implement a class named "Test" so that the code given in figure 1, produces the output shwon in figure 2: [NB: You can have multiple constructors in your class, but you can have only one function named *"f1( )"*] 15

```
int  main(){
      test  ob1,ob2('M');
      ob1.f1();
      ob1.f1 ('.');
      ob1.f1('-',2);
      ob2.f2('#',4,2);
      ob2.f2('=',3,4,2);
      return  0;
}
```

Figure 1: Code listing for 2.a).

```
**********
ABC
**********

... .......
ABC
... .......
--- -------
CDE
--- -------
##########
QR
##########
= = = = = = = = = =
PQRS
PQRS
= = = = = = = = = =
```

Figure 2: Output for 2.a)

   b) Briefly describe about *static* and *const* member of a class. Illustrate with example. 10

3. a) Consider the figure 3 given below: 15

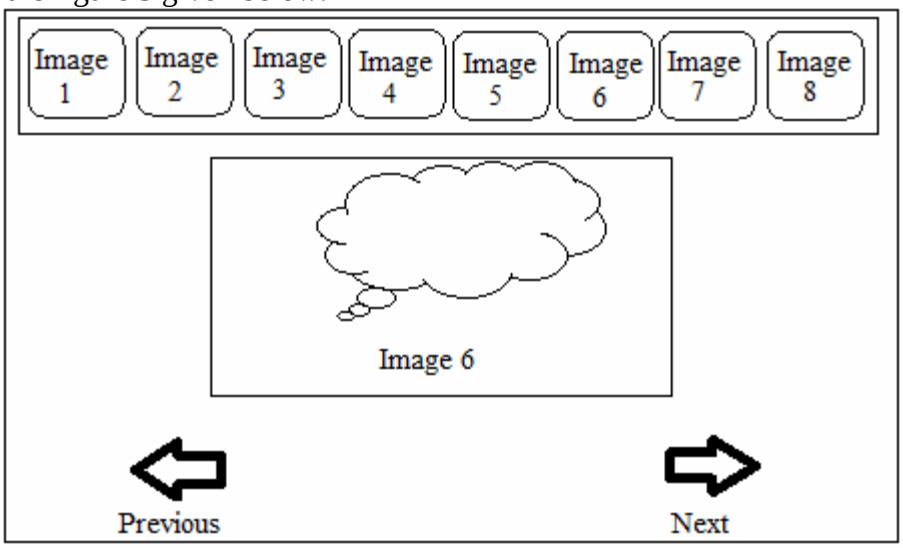

Figure 3: An image viewer

An image viewer displays the images from a particular folder. There are two buttons named "Next" and "Previous" for displaying next or previous image respectively. If you reach to the last image and press "Next" button then it will go to the first image and if currently first image is being displayed and "Previous" button is pressed then it should go the last image.

Write an "ImageViewer" class that models the behavior of an image viewer. The "ImageViewer" class stores the names of the images and has two methods called next() and previous() that takes a single integer parameter indicating how many times the "Next" or "Previous" button is pressed. next() and previous() method should simply print out the name of currently displaying image.
For simplicity assume that there are 10 images in a folder and the name of the images are "image1, image2, image3,……..,image10".

b) Considering the "ImageViewer" class in question 3.a), implement two more functions named add() and remove() for adding or deleting image from the list. Both of the functions does not take any parameter, add() function adds one more image at the end and remove() functions removes the last image. 10
Assume that you can add at most 500 images in a folder.

4. a) Create a class named *"Mystring"*, that will simulate the following functions of standard "string" class. [NB: Write the complete class with necessary constructors] 19
   i. find_first_of( ).
   ii. replace( ).
   iii. insert( ).

b) Write a short note on "*inline function*". What are the benefits and drawbacks of inline function? 6