INTI
INTERNATIONAL COLLEGE PENANG (507232-U)
LAUREATE INTERNATIONAL UNIVERSITIES

FINAL Examination Paper

(COVER PAGE)

Session : **JAN 2012**

Programme : Diploma in Electrical and Electronic Engineering Programme

Course : **CSC 2181: OBJECT ORIENTED PROGRAMMING IN JAVA**

Date of Examination : 16 APRIL 2012

Time : 11A.M. – 1P.M. Reading Time : Nil

Duration : 2 Hours

Special Instructions :

This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks.

Materials permitted :

Nil

Materials provided :

Examiner(s) : **Paul Chin**

Moderator : R.K. Krishnamoorthy

This paper consists of _8__ printed pages, including the cover page.

INTI INTERNATIONAL COLLEGE PENANG

DIPLOMA IN ELECTRICAL AND ELECTRONIC ENGINEERING PROGRAMME
CSC2181 : OBJECT-ORIENTED PROGRAMMING IN JAVA
FINAL EXAMINATION : JAN 2012 SESSION

Instructions: This paper consists of **SIX (6)** questions. Answer any **FOUR (4)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

(a) Write a method to declare a 2 x 3 matrix and initialize it with random values.

(5 marks)

(b) Using sequential logic with if statements that can compare an IQ test result and print out its IQ level based on:

140 and above is 'Genius'
100 to 139 is 'Intelligent'
80 to 99 is 'Average'
70 to 79 is 'Retarded'
anything else is 'Moron'

(10 marks)

(c) Write a program that can input any number marks and output its total marks as well as the average of the marks.You should use sentinel-controlled repetition. Your program should produce an output such as the following example:

```
Enter -1 to quit

Enter grade: 67
Enter grade: 78
Enter grade: 89
Enter grade: 67
Enter grade: 87
Enter grade: 98
Enter grade: 93
Enter grade: 85
Enter grade: 82
Enter grade: 100
Enter grade: -1

Total of all 10 grades is 846
Class average is 84
```

(10 marks)

Question 2

(a) Trace the output of the following code:

```
public class Test
{
   public static void main( String args[] )
   {
      int t;


      t = 6;
      System.out.println( t );
      System.out.println( t++ );
      System.out.println( t );

      System.out.println();

      t = 6;
      System.out.println( t );
      System.out.println( ++t );
      System.out.println( t );

   }

}
```

(10 marks)

(b) Using a *for* control statement, write program fragment that can output the following sequence of numbers:

1 3 5 7 9

(5 marks)

(c) Using a ***do...while*** control statement, rewrite the source code in (b).

(5 marks)

(d) Trace the output of the following source code:

```
public class BreakTest
{
   public static void main( String args[] )
   {
      int count;

      for ( count = 1; count <= 10; count++ )
      {
         if ( count == 5 )
            break;

         System.out.printf( "%d ", count );
      }

      System.out.printf( "\nBroke out of loop at count = %d\n", count
);
   }
}
```

(5 marks)

Question 3

(a) Using Logical Operators, write code fragments for each of the following:

(i) if *status* is *UNMARRIED* (a string) and *age* is larger than or equal to 50, then increase *unmarriedElder* by one.

(ii) if *semesterAverage* is larger than or equal to 90 or *finalExam* is larger than or equal to 90 then print "Student grade is A".

(10 marks)

(b) Write a program that will input 3 integers and print out the smallest.
An example output is shown below:

```
Enter three integer values separated by spaces: 3 4 6
Smallest is: 3
```

(10 marks)

(c) Write code statements that will produce a random number from 1 to 10.

(5 marks)

Question 4

(a) (i) Declare a class called Aliens with one method called displayMessage() that prints out a message "Welcome To Planet Terra".

(4 marks)

(ii) Create a class called AlienTest that will create an Alien object called alien within its main() method.

(3 marks)

(iii) Within the main() method above, write a statement that will call the displayMessage() method of Alien class.

(3 marks)

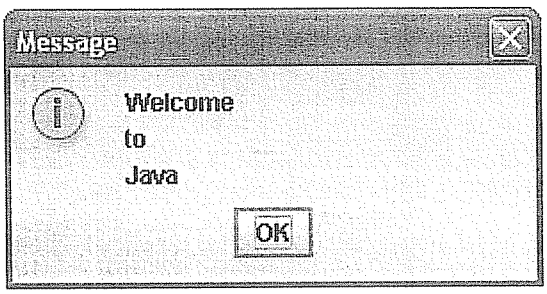
(b) Explain the difference between Primitive Types and Reference Types.

(3 marks)

(c) Explain the meaning of overloaded methods with an example.

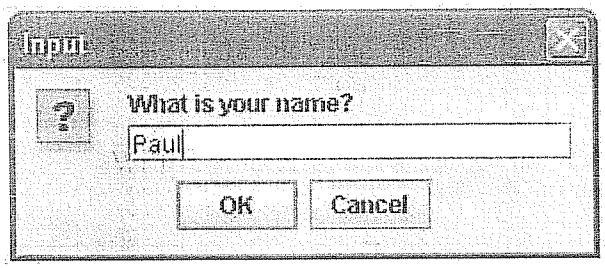
(3 marks)

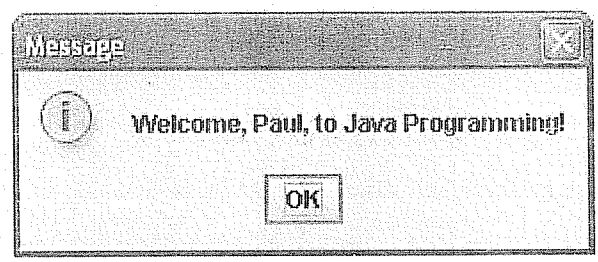
(d) Write a single code to produce the following message box:



(3 marks)

(e) Write a program that can input a user name into an Input Box and then display it in another message box when the user clicks on the OK button in the Input Box:





(6 marks)

Question 5

(a) Rewrite the following pseudocode below in Java:

```
If student's grade is greater than or equal to 90
        Print "A"
    else
        If student's grade is greater than or equal to 80
            Print "B"
        else
            If student's grade is greater than or equal to 70
                Print "C"
            else
                If student's grade is greater than or equal to 60
                    Print "D"
                else
                    Print "F"
```

(4 marks)

(b) Rewrite the following pseudocode below in Java:

```
Set count to zero

While count is less than or equal to ten
  If count is divisible by 2
       Print count
  End if
End while
```

(10 marks)

(c) Explain what is inheritance and give an example of a declaration.

(6 marks)

(d) Identify and correct the errors in each of the following sets of code:

```
(i) while ( c <= 5 )
    {
       product *= c;
       ++c;
```

```
(ii) if ( gender == 1 )
       System.out.println( "Woman" );
     else;
       System.out.println( "Man" );
```

(5 marks)

Question 6

(a) Write a program to print all Pythagorean triples from 1 to 500, eg:

```
3  4  5
4  3  5
5  4  4
6  8  10
8  6  10
10 8  6
```

(15 marks)

(b) Create a class Rectangle. The class has attributes length and width, each of which defaults to 1. It has methods that calculate the perimeter and the area of the rectangle. It has set and get methods for both length and width. The set methods should verify that length and width are each floating-point numbers larger than 0.0 and less than 20.0. Write a program to test class Rectangle.

(10 marks)

--THE END--

csc2181/Jan 2012/Paul Chin