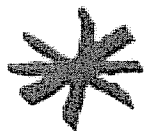


INTI
INTERNATIONAL COLLEGE PENANG (507232-U)
LAUREATE INTERNATIONAL UNIVERSITIES

Final Examination Paper

(COVER PAGE)

Session : **Jan 2013**

Programme : DIPLOMA IN INFORMATION TECHNOLOGY

Course : **CSC 2100: OBJECT ORIENTED PROGRAMMING**

Date of Examination :

Time : 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 : Answer Booklet

Examiner(s) : **Lim Chai Kim**

Moderator :

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

INTI INTERNATIONAL COLLEGE
PENANG

DIPLOMA IN INFORMATION TECHNOLOGY

CSC2100: OBJECT-ORIENTED PROGRAMMING

FINAL EXAMINATION: JAN 2013 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) Declare **FIVE (5)** variables of **FIVE (5)** different primitive data types with initialization.

(5 marks)

(b)(i)

```
1       int i = 1, j = 1;
2       while (i <= 5) {
3           System.out.print(i + " - ")
4           j=1;
5           while (j <= i {
6               System.out.print(j + " ");
7               j++;
8           }
9           System.Out.println();
10          i++;
11      }
```

Identify **THREE (3)** syntax errors from the code snippet above. Describe in which line of code the error is found, the error and what should be the correct code.

(3 marks)

(b)(ii) Trace the output of the corrected code in Question 1(b)(i) above.

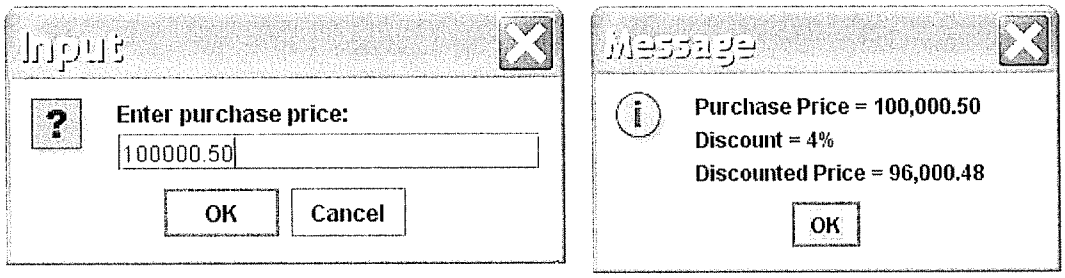
(5 marks)

(c) Write a full Java program that prompts the user to enter the price of a purchase and then displays the discount percentage AND discounted price according to the following discount scale:

Purchase Price	Discount (%)
Less than 75,000	0
75,000 – 99,999.99	2.5
100,000 – 149,999.99	4
150,000 or above	6.5

Use JOptionPane to get user input and to display output. The discounted price should be displayed in **TWO (2)** fraction digits only. Use the "**if-then-else**" control structure.

This is how the program should look like:



(12 marks)

Question 2

(a) List and explain using examples **THREE (3)** types of comments in the Java language.

(6 marks)

(b) Write a code snippet using nested "for" loop to produce the following output:

```
2
24
246
2468
246810
```

(4 marks)

(c)
```
public int cube(String input)
{
    int i = 0;
    i = Integer.parseInt(input);
    i = i * i * i;
    return i;
}
```

Explain the exception that will be triggered by this code if `input` is not an integer but a floating point number. Then, write the try catch statement to catch this exception.

(5 marks)

(d)(i) Describe what is wrong with the following interface:

```
public interface SomethingIsWrong {
    void aMethod(int aValue){
        System.out.println(aValue);
    }
}
```

(3 marks)

(d)(ii) Rewrite the interface above to make it right.

(2 marks)

(d)(iii) Write code for class Clueless that implements the interface SomethingIsWrong corrected in Question 4(b)(ii) above.

(5 marks)

25

Question 3

(a) Write code to show an example of **method overloading**.

(5 marks)

(b)(i) Answer the following question based on the **TWO (2)** classes given below :-

```
public class Zombie {
    private int row;
    private int column;
    private int health;

    public Zombie (int row,
                   int column,
                   int health)
    {
       this.row = row;
       this.column = column;
       this.health = health;
    }
}
```

```
public class BucketHeadZombie
{
    private int row;
    private int column;
    private int health;
    private float defense;

    :
    :
}
```

Assume there is a relation between **Zombie** and **BucketHeadZombie** where Zombie is the superclass and BucketHeadZombie is the subclass. Change the declaration of BucketHeadZombie to inherit from Zombie. You need to modify the codes in terms of:

- Inheritance
- Constructor with parameters

(6 marks)

(b)(ii) Write code to declare an array of **FIVE (5)** BucketHeadZombie instances. Use a "for" loop to construct the array elements. All zombies should be constructed to be in different rows (row 1 to 5) but all should start from column **ONE (1)**. All zombies should be constructed with health=10 and defense=2.5.

(7 marks)

(c) Trace the output of the following code:

```
int i;
for (i = 1; i <= 10; i++) {
        if (i % 2 == 0)
              continue;
        System.out.print( i + " | ");
}
```

(4 marks)

(d) Trace the output of the following code:

```
int i=7;
System.out.println(++i);
System.out.println(i++);
i /= 3;
System.out.println(i);
```

(3 marks)

Question 4

Questions **4(a)** to **(e)** are related. Combine your answers in **ONE(1)** class definition.

```
public class Time{
      private int hour;
      private int min;
      private int sec;
}
```

(a) Write a constructor for the **Time** class above which will initialize all the attributes of the class to 0(zero).

(3 marks)

(b) Add code to show "**contructor overloading**".

(3 marks)

(c) Add the **accessor/get** methods for the Time class above.

(3 marks)

(d) Add the **mutator/set** methods for the Time class above. The mutator methods should check the input parameter for its validity. For example, the "hour" field should be set to a value between 0 and 23 (inclusive) only.

(6 marks)

(e) Add a method **toString()** that will return the time string using the format **"hh:mm:ss"**. For example: **08:08:08** and **13:13:13**

(10 marks)

Question 5

(a) Explain the difference between the public and private access modifier.

(5 Marks)

(b)

```
1  public class SuperClass {
2    private String field1;
3    public String field2;
4
5    public SuperClass(String field1, String field2)
6    {
7       this.field1 = field1;
8       this.field2 = field2;
9    }
10 }
11
12 public class SubClass extends SuperClass{
13 {
14    public String field3;
15
16    public SubClass(String f1, String f2, String f3)
17    {
18       field1 = f1;
19       field2 = f2;
20       field3 = f3;
21    }
22 }
```

Find **ONE (1)** syntax error in the code above. Explain the error and suggest **TWO (2)** ways the error can be corrected.

(7 marks)

(c)(i) Trace the output of the following code:

```
int a=2, b=1, min=0;
min = (a < b) ? a : b;
System.out.println("Min="+min);
```

(2 marks)

(c)(ii) Trace the output of the following code:

```
int x=3;
returnString = "There " + (x > 1 ? " are " + x + " bottles" :
                  "is one bottle") + " on the table.";
System.out.println(returnString);
```

(3 marks)

(d) Explain the concept of polymorphism using example code.

(8 marks)

25

Question 6

(a)

```
1  public class Test {
2
3   public void intro(){
4        System.out.println("Hi");
5   }
6
7   public static void main(String args[])
8   {
9       intro();
10  }
11 }
```

There is **ONE (1)** syntax error in the code above. Identify the line number where the syntax error is found. Describe the error and suggest **TWO (2)** ways to correct the error.

(5 marks)

(b) Explain **TWO (2)** differences between an abstract class and an interface.

(4 marks)

(c)(i)

```
int sType = 3;
String output = "";
switch(sType)
{
    case 1:
       output = "Summer";
    case 2:
       output = "Autumn";
    case 3:
       output = "Winter";
    case 4:
       output = "Spring";
    default:
       output = "Durian";
}
System.out.print(output + " season");
```

Trace the output of the code above.

(2 marks)

(c)(ii) The code given in question 6(c)(i) above contains logic error. Describe the error and suggest a way to correct the error.

(3 marks)

(d) List any **SIX (6)** Java Swing basic controls.

(3 marks)

(e) Write a snippet of code to :

i) Declare and construct a JButton with the label "Roll Die".
ii) Declare and construct a JLabel with the label "Result: ".
iii) Add an ActionListener to the JButton so that when the button is clicked, the result of the roll is displayed on the JLabel.

You do not need to write code for placement of the button and label on a container.

(8 marks)

--THE END—

CSC2100/Jan 2013/Lim Chai Kim

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