INTI International University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session : **APRIL 2018**

Programme : Diploma In Information And Communication Technology (DICTN)
Diploma In Information Technology (DITN)

Course : **ICT2100: Object Oriented Programming**

Date of Examination : July 26, 2018 (Thursday)

Time : 2:00pm – 4:00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

SECTION A: Answer **FOUR (4)** questions.
SECTION B: Answer **THREE (3)** questions.

Materials permitted :

Non-programmable Calculator

Materials provided :

Nil

Examiner(s) : **Siti Hajar** and Lai Kim Min

Moderator : Siti Hawa Mohamed Said

*This paper consists of **6** printed pages, including the cover page*

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY
PROGRAMME (DICTN)
ICT2100: OBJECT-ORIENTED PROGRAMMING
FINAL EXAMINATION: APRIL 2018 SESSION

Instruction: This paper consists of **SEVEN (7)** questions. Answer **ALL** questions in the answer booklet provided.

SECTION A (40%)

Question 1

(a) Explain **TWO (2)** benefits of object oriented programming. (4 marks)

(b) Assuming that `x=2` and `y=3`, what does each of the following statements display?

i. `System.out.printf("x =%d\n",x);`
ii. `System.out.printf("Value of %d + %d is %d\n",x,x,(x+x));`
iii. `System.out.printf("x=");`
iv. `System.out.printf("%d=%d\n",(x+y),(y+x));`

(4 marks)

(c) Declare and initialize a single dimensional array with the following details:

i. Array type: `int`
ii. Array name: `myArray`
iii. Array elements: `23,4,14,7,8`

(2 marks)

Question 2

(a) Explain what happens when a `break` statement is encountered inside a loop. (3 marks)

(b) For the program template below, please write:

(i) Variable declaration for `sum` with suitable datatype
(ii) Prompt user inputs for two variables: `number1` and `number2`
(iii) The formula to add variable `number1` and `number2`
(iv) Display of `sum`

(7 marks)

```
public static void main( String args[] )
{
   Scanner input = new Scanner( System.in );
  int number1;
  int number2;

   (Your answer here)
}
```

Question 3

(a) Create a constructor method for class `vehicle` that prints out "`I have a car`". Then, write a statement to access that constructor in the main method.

(4 marks)

(b) Write the accessor and mutator methods (with proper method names) for this variable declaration: `private int age`.

(4 marks)

(c) Class Math provides a collection of methods that enable you to perform common mathematical calculations. List down **FOUR (4)** methods of class math.

(2 marks)

Question 4

(a) Write down a statement to produce the output below by using proper escape sequences. (Hint: Use only a single `System.out.println();`)

Output:

```
Hi!
                "Welcome to the world of programming!"
Good
    Luck!
```

(2 marks)

(b) Convert declaration `float grade = 87.6;` into the following data types by using type casting method.

(i) `double`

(ii) `int`

(2 marks)

(c) Based on the statements below, answer the questions by displaying the output using the statement `System.out.println()`:

```
String str1="Please bring your umbrella, its the rainy seasons"

String str2="We have two semesters every year"

String str3="Final exam is the last assessment for students"
```

i. Determine the length of `string str1`

ii. Compare `str1` and `str2` for equality of contents

iii. Convert `str2` string to uppercase

iv. Print the 8th character in `str3`

v. Print the word '`semesters`' in `str2` by using `getChars()` method.

vi. Compare `str3` with "`Study hard`" by using `compareTo()` method.

(6 marks)

SECTION B (60%)

Question 5

(a) A class that is declared as abstract is known as abstract class. Given an abstract class Greeting, write a subclass of Greeting called `implementSayHello` and implement the method `sayHello()` that prints "Hello everybody!". The class is represented as below:

```
abstract class Greeting
{
abstract void sayHello();
}
```

(10 marks)

(b) Create a class called `recursionTutorial` that prints out "I can do it!" and stop when the counter reaches 10 (use `if` statement only). Your program should include class declaration, counter variable declaration, print method and counter method.

(10 marks)

Question 6

(a) Write a static method named "stars" that will output a line of stars. (A star is the character "*".) The number of stars should be given as a parameter to the method. Use a for loop. For example, the command "stars(20)" in the main method would output:

```
********************
```

(10 marks)

(b) Write a `main ()` method that uses the method `stars` that you wrote for Question 6 (a) to produce 10 lines of stars with 1 star in the first line, 2 stars in the second line, and so on, as shown below.

Output:

```
*
**
***
****
*****
******
*******
********
*********
**********
```

(10 marks)

Question 7

(a) An exception is an event, which may occur during the execution of a program that disrupts the normal flow of the program's instructions. Describe **THREE (3)** scenarios where exceptions can occur.

(6 marks)

(b) Below are the random lines of codes in a program that perform finally block exception. Arrange them in the correct order to produce a correct program and rearrange the brackets accordingly.

- `finally{System.out.println("finally block is always executed");}`
- `try{`
  ```
          int data=25/0;
          System.out.println(data);
     }
  ```
- `public class TestFinallyBlock2{}`
- `catch(ArithmeticException e){System.out.println(e);}`
- `public static void main(String args[]){}`

(6 marks)

(c) Assuming all packages are imported, identify **TWO (2)** syntax/runtime errors in each of the following program fragments:

(i)
```
float tax;
int salary;
salary =Integer.parseInt(
JOptionPane.showInputDialog("Enter your salary"));
if (salary <=25000)
tax = 10.0;
else if (salary > 25000)
tax = 15.0;
System.out.println("Your tax is " + tax);
```

(ii)
```
int i=1;
while (i<=5)
{ if(i==3)continue;
System.out.println(i);
i++;
```

```
}
for(int j=1; j<=5; j++)
{ if(j==3)continue;
System.out.println(i);
}
System.out.println(j);
```

(8 marks)

~ The End ~

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