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**UNIVERSITY EXAMINATIONS  
2017/2018 ACADEMIC YEAR**

**SUPPLEMENTARY/SPECIAL EXAMINATIONS  
YEAR TWO SEMESTER TWO EXAMINATIONS**

**FOR THE DIPLOMA IN  
INFORMATION TECHNOLOGY**

**COURSE CODE : DIT 077**

**COURSE TITLE : OBJECT ORIENTED  
PROGRAMMING**

**DATE: 19/10/2008 TIME: 8.00A.M. – 10.00A.M**

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**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTIONS ONE AND ANY OTHER TWO.**

## QUESTION ONE (COMPULSORY) [24 MARKS]

- a) Explain using sample code the basic structure of a java program. [4 marks]  
b) Differentiate between System.out.print and System.out.println as used in java. [2 marks]  
c) Consider the code below:

```
Int key=1;
Switch (key+1)
{
case 1:
system.out.println("Apples");
Break;
case 2:
System.out.println("Oranges");
Break;
Case 3:
System.out.println("Peaches")
Break;
Case 4:
System.out.println("Plums");
Break;
Default
System.out.println("Fruitless");
}
```

- What is the output produced by the above code. [2 mark]  
d) Identify three mistakes in the program above. [3 marks]  
e) What would be the output if the first line were changed to the following? [4marks]  
i. int key=3;  
ii. int key=5;  
f) Mention three types of loops in java. [3 marks]  
g) Discuss any three features that any object oriented programming language should have. [6 marks]

## QUESTION TWO [18 MARKS]

- a) Explain the key differences between the following scopes of variables. [6 marks]  
i. Local variables  
ii. Class variables  
iii. Parameters  
b) Write java program to accomplish each of the following tasks: [12 marks]  
i. Create a Scanner that reads values from the standard input.  
ii. Declare the variables L, W and A to be of type int.  
iii. Read the first integer from the user and store it in the variable L.

- iv. Read the second integer from the user and store it in the variable W.
- v. Compute the product of the two integers contained in variables L and W, and assign the result to the variable A.
- vi. Display the message "Area is" followed by the value of the variable A.

### QUESTION THREE [18 MARKS]

- a. Define a class called `Time`, which models a time instance with hour, minute and second. It contains the following members: [10 marks]
- i. 3 private integer instance variables `hour`, `minute`, and `second`.
  - ii. Constructors, getters and setters.
  - iii. Methods to set and get `hour`, `minute` and `second`.
  - iv. A method to display time in the format: `"hh:mm:ss"`
- b. Write a driver class called `TimeDriver` and write a code segment that creates an instance of the `Time` class above and calls the methods on the object. [8 marks]

### QUESTION FOUR [18 MARKS]

- a) Explain any five importance of using java as a programming language. [5 marks]
- b) Differentiate between procedural programming and object oriented programming. [4 marks]
- c) Explain the use of the FOR loop in a java program. [4 marks]
- d) Write a java program to find the average of any given three numbers. [5 marks]

### QUESTION FIVE [18 MARKS]

- a) Explain using sample code the basic structure of a java driver class. [4 marks]
- b) Discuss benefits of object oriented programming. [4 marks]
- c) What is the output of the following Java program [10 marks]

```
public class Numbers {

    public static void main(String[] args) {
        int a=10;
        int b=20;
        int c=3;
        System.out.println("a+b="+ (a+b));
        System.out.println("axb="+ (a*b));
        System.out.println("a-c="+ (a-c));
        System.out.println("a==b="+ (a==b));
        System.out.println("b/a="+ (b/a));
        System.out.println("a%c="+ (a%c));
    }
}
```

```
System.out.println("a++="+(a++));  
System.out.println("--b="+(--b));  
System.out.println("c<a&&b>a="+(c<a&&b>a));  
System.out.println("!c<a&&b>a="+!(c<a&&b>a));  
    }  
}
```