MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATION

2017/2018 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

BACHELOR OF SCIENCE (MATHEMATICS)

COURSE CODE: COM 1202

COURSE TITLE: INTRODUCTION TO PROGRAMMING

DATE : 2ND MAY 2018 **TIME: 0830 – 1030 HRS**

INSTRUCTIONS:
Attempt **all** Questions in **section A** and any **other two** questions from **section B**

*This paper consists of **5** printed pages. Please turn over.*

SECTION A (30 Marks): Answer all questions from this section

QUESTION 1

(a) Explain the meaning of the following terms **(3 Marks)**

(i) Algorithm

(ii) String Concatenator

(iii) Variable

(b) Suggest a good variable name for the following variables providing a sample declaration/assignment statement for each **(5 Marks)**

(i) Age

(ii) The number of stars in the galaxy

(iii) The average rainfall for the month of December

(iv) Your name

(v) A status value corresponding to failure or success

(c) Discuss four main qualities of a good programming language **(4 Marks)**

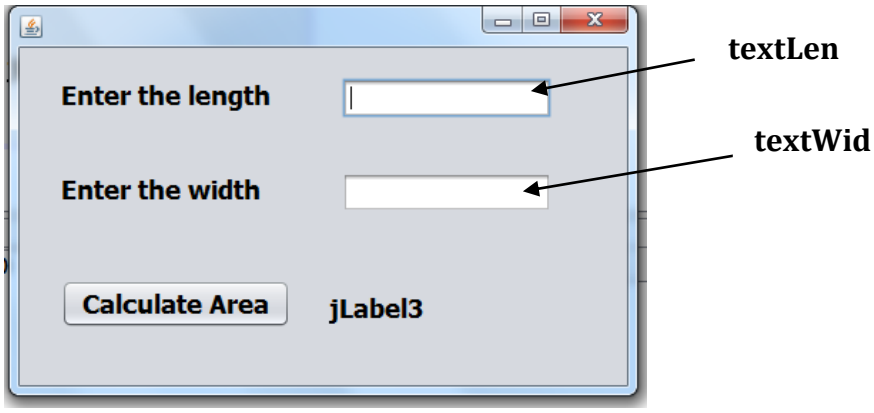
(d) Give the output of the following block of code **(3 Marks)**

```
class IfSample {
public static void main(String args[]) {
int x, y;
x = 10;
y = 20;
if(x < y) System.out.println("x is less than y");
x = x * 2;
if(x == y) System.out.println("x now equal to y");
x = x * 2;
if(x > y) System.out.println("x now greater than y");
// this won't display anything
if(x == y) System.out.println("you won't see this");
  }
}
```

(e) Write a complete java program to converts a temperature from degrees Fahrenheit to degrees Celsius. Use comments to explain your code.

Hint: ℃ = (℉ - 32) x 5/9 **(5 Marks)**

(f) Write the code for the calculate area button to display the area on jLabel3 using the variables indicated in the following figure **(3 Marks)**



(g) Write a program to do the following **(6 Marks)**

1. get from the user the radius of a cone in cm
2. get from the user the height of a cone in cm
3. compute the cone's volume
4. display the volume of the cone in cm^3

The volume of a cone is $\frac{1}{3}\pi r^2 h$ where r is the radius and h is the height.

SECTION B (40 Marks): Answer TWO questions from this section

QUESTION 2

(a)

(b) Write an algorithm and a program to reads two values, determines the largest value and prints the largest value with an identifying message **(5 Marks)**

(c) Draw a flowchart to find the sum of first 50 natural numbers **(5 Marks)**

QUESTION 3

(a) Draw a flow chart to calculate the average marks of students **(4 Marks)**

(b) Write an input process and output (IPO) chart for a payroll system. **(4 Marks)**

(c) Write a payroll program in java program using the IPO chart (b) above **(6 Marks)**

(d) Identify six errors by first indicating the line number then the error and finally suggest how to correct the error **(6 Marks)**

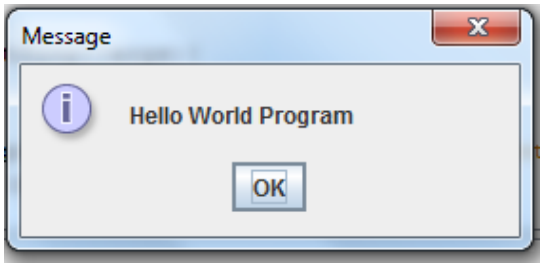
```
1. public class Narf {
2. public static void zoop(string fred int bob) {
3. System.out.println(fred);
4. if (bob = 5) {
5. ping("not ");
6. } else {
7. System.out.println("!");
8. }}
9. }
10. public static void main(String[] args) {
11. int bizz = 5;
12. int buzz = 2;
13. zoop("just for", bzz);
14. clink(2*buzz)
15. }
16. public static void clink(int fork) {
17. System.out.print("It's );
18. zoop("breakfast ", fork) ;
19. }
20. public static void ping(string strangStrung) {
21. System.out.println("any " + strangStrung  "more ");
22. }
23. }
```

QUESTION 4

(a) What is the output of the following block of code **(2 Marks)**

```
for (int i=1;i < 5;i++)
        {
                if (i % 2= =0)
                        System.out.println("Hello World: "+i);
        }
```

(b) Write a program that will output the following **(3 Marks)**



(c) Identify what is wrong with the following program code **(3 Marks)**

```
public class SomethingIsWrong {
   public static void main(String[] args) {
      Rectangle myRect;
      myRect.width = 40;
      myRect.height = 50;
      System.out.println("myRect's area is " + myRect.area());
   }
}
```

(d) Write an algorithm and a complete java program that reads three numbers and prints the value of the largest number. **(3 Marks)**

(e) Write a pseudocode, algorithm, flowchart and a complete java program to perform the following tasks

(i) Compute the perimeter of a rectangle **(5 Marks)**

(ii) Compute the area of a triangle **(5 Marks)**

END//