



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN INFORMATION
TECHNOLOGY**

MAIN CAMPUS

CIT 108/CIM 114: OBJECT ORIENTED PROGRAMING I

Date: 19th June, 2017

Time: 3.30 - 6.30 pm

INSTRUCTIONS:

- Answer question ONE and any other TWO questions.



QUESTION 1: (30 MARKS)

1. Define what the error "cant load the main class". what could the error be?

(2 marks)

2. Write a program to display the results of 100 students in a class. Arrange them in descending order with the student with the highest marks being last on the list .

(10 marks)

3. what are the rules followed in naming of variables? (3 marks)

4. Differentiate between a while loop and do_while loop. (6 marks)

5. Write a Java assignment statement that will set the value of the variable interest to the value of the variable balance multiplied by the value of the variable rate .

The variables are of type double.

(5 marks)

6. What is the output produced by the following lines of program code?

(1 marks)

```
int n = 3;
n++;
System.out.println("n == " + n);
n -- ;
System.out.println("n == " + n);
```

7. Write a line of code that creates a Scanner object named frank to be used for obtaining keyboard input. (3 marks)

QUESTION 2: (20 MARKS)

A) A cuboid has length,width and height. Write a method that calculates the surface area of the cuboid. The program should allow the user to enter the dimensions from the keyboard and print the surface area and volume of the box on the console.

(10 mark)

B) A dairy farmer sells 10litres of milk daily at 20/=. Having a shamba boy, he needs to have a program that records all this data for his own tracking. Using branching and looping statements, come up with a program that can do this.

(10 marks)

QUESTION 3: (20 MARKS)

A) Given the following fragment that purports to convert from degrees Celsius to degrees Fahrenheit, answer the following questions:

(9 marks)

```
double celsius = 20;;  
double Fahrenheit ;  
Fahrenheit = (9/5) * celsius + 32.0 ;
```

- i. what value is assigned to Fahrenheit ?
 - ii. Explain what is actually happening, and what the programmer likely wanted.
 - iii. Rewrite the code as the programmer intended.
- B) Suppose salary and deductions are variables of type double that have been given values. Write an if-else statement that outputs the word "Crazy" if salary is less than deductions ; otherwise, it should output "OK" and set the variable net equal to salary minus deductions .

(9 marks)

- C) What is the output produced by the following code? (2 marks)

```
char letter = 'B';  
switch (letter){  
case 'A':  
case 'a':  
    System.out.println("Some kind of A.");  
case 'B':  
case 'b':  
    System.out.println("Some kind of B.");  
break;  
default:  
    System.out.println("Something else.");  
break; }
```

QUESTION 4: (20 MARKS)

- A. The video game machines at your local arcade output coupons according to how well you play the game. You can redeem 10 coupons for a candy bar or 3 coupons for a gumball. You prefer candy bars to gumballs. Write a program that defines a variable initially assigned to the number of coupons you win. Next, the program should output how many candy bars and gumballs you can get if you spend all of your coupons on candy bars first, and any remaining coupons on gumballs.

(9 marks)

- B. Write a complete Java program that reads in a line of keyboard input containing two values of type int (separated by one or more spaces) and outputs the two numbers as well as the sum of the two numbers.

(5 marks)

- C. Write an import statement that makes the Scanner class available to your program or other class. (2 marks)
- D. Write a program that reads in a line of text and then outputs that line of text first in all uppercase letters and then in all lowercase letters.

(4 marks)

QUESTION 5: (20 MARKS)

- A) Discuss the three main pillars of object oriented programming giving an example program that would depict all of them in use.

(8 marks)

- B) An automobile is used for commuting purposes. Write a program that takes as input the distance of the commute in miles, the automobile's fuel consumption rate in miles per gallon, and the price of a gallon of gas. The program should then output the cost of the commute.

(8 marks)

- C) Write a program that reads in two integers typed on the keyboard and outputs their sum, difference, and product. (4 marks)
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