



Open University *of* Mauritius

BSc (Hons) Computer Science [OUbs033]

EXAMINATION FOR: June – July 2024

MODULE: OO Programming [OUbs033213]

DATE:

DURATION: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. This paper consists of **4 questions**.
2. Answer **ALL QUESTIONS**.
3. Always start a new question on a fresh page.
4. Total marks: **100**.

This question paper contains 4 questions and 4 pages.

Question 1 [25 marks]

- a) What do each of the following print? **[5 marks]**
- i) `System.out.println(22 + "rs");`
 - ii) `System.out.println(22 + 3 + "rs");`
 - iii) `System.out.println((22+3) + "rs");`
 - iv) `System.out.println("rs" + (22+3));`
 - v) `System.out.println("rs" + 22 + 3);`
- b) The below Java codes will print the sum of two numbers input from the keyboard. Write down the missing codes. **[15 marks]**

```
import java.util.Scanner;

public class Test {
    public static void main(String[] args)
    {
        Scanner input = new Scanner (System.in);
        ***MISSING CODES***
    }
}
```

- c) Write down the syntax for a function in Java. **[5 marks]**

Question 2 [25 marks]

- a) Differentiate between a class and an object by using an example. **[6 marks]**
- b) Explain briefly the three steps when creating an object from a class. **[6 marks]**
- c) Given the below codes, represent each of them in object-oriented sentences using the principle of inheritance. **[9 marks]**

```

public class Animal {

}

public class Mammal extends Animal{

}

public class Reptile extends Animal{

}

public class Dog extends Mammal{

}

```

- d) Write a java code to call an interface *Behaviour* in the class *Animal*. **[4 marks]**

Question 3 [25 marks]

In this question you will be asked to refer to the below code snippets.

```

public class Main {
    public static void main (String args[]) {
        int array[] = {20,20,40};
        int num1 = 15, num2 = 10;
        int result = 10;
        try {
            result = num1/num2;
            System.out.println("The result is" +result);
            for(int i = 5; i >=0; i--) {
                System.out.println("The value of array is" +array[i]);
            }
        } catch (ArrayIndexOutOfBoundsException e) {
            System.out.println("Array is out of Bounds"+e);
        } catch (ArithmeticException e) {
            System.out.println ("Can't divide by Zero"+e);
        }
    }
}

```

- Define an exception in java and how is it handled? **[6 marks]**
- What type of exception have occurred in the given code? **[3 marks]**
- Determine the output result of the given code. **[8 marks]**
- Re-write the code by handling the exception through the keyword 'throws' instead. **[8 marks]**

Question 4 [25 marks]

- a) Define an array. **[1 mark]**
- b) *In this question you will be asked to refer to the below code snippets.*

```
public class Main {  
    public static void main(String[] args) {  
        int my_array[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};  
        int sum = 0;  
  
        ***MISSING CODE A***  
    }  
}
```

- i) What is the size of the array? **[2 marks]**
- ii) Write down the values of the array at index 2. **[2 marks]**
- iii) Write down the missing code A that creates a for loop and display the elements in the array as output in this syntax The sum is value. **[10 marks]**
- iv) Write down the code that creates a loop and display the elements in the array as output in this syntax Element at index i: value. **[10 marks]**