Roll Number												

Narula Institute of Technology

An Autonomous Institute under MAKAUT

2023

END SEMESTER EXAMINATION - ODD 2023

CS503 - Object Oriented Programming using Java

TIME ALLOTTED: 3Hours **FULL MARKS: 70**

Instructions to the candidate:

Figures to the right indicate full marks.
Draw neat sketches and diagram wherever is necessary.
Candidates are required to give their answers in their own words as far as practicable

Group A
(Multiple Choice Type Questions)
Answer any ten from the following, choosing the correct alternative of each question: 10×1=10

1. In System.out.println, out is (1) CO3 BL1
a) Class
b) Method
c) Output stream object
d) None of these

2. Which one of the following statements is wrong? (1) CO4 BL1
a) A base class reference can refer to an object of a derived class
b) The dynamic method dispatch is not carried out at the run time
c) The super() method refers to the base class constructor
d) The super.base-class-method-name( ) format can be used only within a derived class

3. What is the output of this code fragment? (1) CO2 BL5

```
int x=3;

int y=10;

System.out.println (y % x);
```

a) 0
b) 1
c) 2
d) 3

4. What would happen if constructors had return types? (1) CO2 BL1
a) Compilation error
b) Runtime error
c) Successful Compilation and Execution
d) Only String return type is allowed

5. JVM is (1) CO1 BL1

a) platform dependent
b) platform independent
c) depends on machine architecture only
d) depends on operating system only

6. Which one of the following is wrong? (1) CO5 BL2
a) 'Runnable' is a predefined interface
b) The sleep() method instructs a thread to terminate its execution
c) The isAlive() method tells whether a thread has not yet died
d) MAX_PRIORITY represents the level 10

7. Find out the output of the following: (1) CO3 BL5

```
class GfG
{
    public static void main(String args[])
    {
        String s1 = new String("JISCSE");
        String s2 = new String("JISCSE");
        if (s1 == s2)
            System.out.println("Equal");
        else
            System.out.println("Not equal");
    }
}
```

a) Equal
b) Not equal
Not equal
c) Equal

Equal
d) Not equal

8. Which keyword is used to create an abstract class in Java? (1) CO4 BL2
a) abstract
b) encapsulate
c) private
d) Virtual

9. Exception created by try block is caught in which block. (1) CO5 BL4
a) catch
b) throw
c) final
d) none

10. How many objects will be created for the following: (1) CO3 BL3

```
String str1 = “abc”;

String str2 = new String(“abc”);
```

a) 1

b) 2
c) 0
d) None of the above

11. What is the purpose of the "clone" method in Java?	(1)	CO1	BL1

a) It is used to create a copy of an object
b) It is used to clone a class
c) It is used to override a method
d) It is used to create an interface

12. What is the purpose of the "super()" statement in a constructor?	(1)	CO4	BL2

a) It calls the superclass constructor
b) It calls the current class constructor
c) It creates a new object
d) It is not a valid statement in Java

Group B
(Short Answer Type Questions)
(Answer any three of the following) 3x5=15

13. Short Answer Type Question. Explain in brief.	(5)		
a) How does a mutable string differ from an immutable string in Java? Explain with an example.	(3)	CO3	BL4
b) What is the significance of the “static” keyword mentioned in the statement “public static void main (String[] args)”?	(2)	CO2	BL2
14. Discuss the Applet life-cycle indicating the functions.	(5)	CO5	BL4
15. Short Answer Type Question. Explain in brief.	(5)		
a) Explain the term “Polymorphism” with the help of a suitable example.	(2)	CO2	BL4
b) What is the difference between Method overloading and Constructor overloading?	(2)	CO2	BL2
c) Explain the difference between Error and Exception in exception handling in Java.	(1)	CO5	BL4
16. Write a Java program to show multiple inheritance.	(5)	CO4	BL6
17. Correct the code for overloading methods.	(5)	CO3	BL3

```
public class Figure{

        public String draw(String s)

        {

                return “Figure Drawn”;

        }

        public void draw(String s) { }

        public void draw(double f) { }
```

```
}
```

Group C
(Long Answer Type Questions)
(Answer any three of the following) 3x15=45

18. Long Answer Type Question. Explain in detail.	(15)		
a) What are the differences between Method Overloading and Method Overriding?	(3)	CO4	BL2
b) Explain Dynamic Method Dispatch with suitable example.	(6)	CO4	BL4
c) Write a program to access static variables and static methods to explain the 'static' keyword properly.	(6)	CO2	BL6
19. Long Answer Type Question. Explain in detail.	(15)		
a) Explain the term “Inheritance” with the help of a simple example.	(3)	CO4	BL4
b) Describe different types of inheritance in Java with the help of their own diagram.	(2)	CO4	BL4
c) “Java cannot support multiple inheritances." Justify your answer.	(3)	CO4	BL3
d) How can you create your own package and add classes inside that package? Explain with the help of an example.	(4)	CO4	BL4
e) Do a comparative analysis of class, abstract class, and interface.	(3)	CO4	BL2
20. Write short notes: (Any *three*)	(15)		
a) Generalization and Specialization	(5)	CO1	BL6
b) Thread Life-Cycle	(5)	CO5	BL6
c) Garbage Collector	(5)	CO2	BL6
d) Usage of ‘this’ keyword	(5)	CO2	BL6
e) Byte Code and JVM	(5)	CO2	BL6
21a. What is the use of final keyword? Give example.	(5)	CO2	BL6
21b. Compare Application and Applet.	(5)	CO5	BL4
21c. Write a short note on this keyword.	(5)	CO2	BL2
22. (a) State the difference between String and StringBuffer. (5) (b) Write the output of the following code: (3)	(15)	CO3	BL5

```
public class StringComparison

{

public static void main(String[] args)

{

    String str1=new String("Scaler");
```

```
    String str2=new String("Scaler");

    System.out.println(str1 == str2);

    System.out.println(str1.equals(str2));

}

}
```

(c) Write a program in JAVA to print each of the words of a sentence in reverse order. As an example, suppose the given string is s = " India is our country", and the output will be "aidnI si ruo yrtnuoc". (7)
