0505N277

Candidate's Seat No :_____

MSc Sem.-2 Examination

410

Bioinformatics

May-2025

Time : 2-30 Hours] **[Max. Marks : 70**

Q1 : Answer the following :

a. Briefly explain the data types and literals in Java using examples (7)

b. Briefly explain the operators in Java using examples (7)

OR

Q1 : Answer the following :

a. Briefly explain the looping construct in Java using examples. Write a program to input 10 nos from the user and print the sum. (7)

b. Briefly explain the Strings in Java. Write a java program to input a DNA string and print its GC% (7)

Q2 : Answer the following :

a. Briefly explain arrays in Java. Use the iterator for loop to display an array (7)

b. Write a program to input 10 strings and print only strings that begin a vowel (7)

OR

Q2 : Answer the following :

a. Briefly explain encapsulation. What is data hiding. Explain access modifiers (7)

b. Create a class Protein (7)

Data Members:

PDBID:string

Sequence:string

Methods:

Write get/set methods

Write the show method

Q3 : Answer the following :

a. Briefly explain what is method overloading. Create a class Square

Data Members : (7)

Side:int

Write the getArea() and getArea(side)

b. Briefly explain constructors in Java. Write the default and overloaded constructors for the Square Class. (7)

OR

Q3 : Answer the following :

a. Briefly explain what is Inheritance in Java using examples. (7)

b. Describe what is overriding using examples. What is DMI (7)

Q4 : Answer the following :

a. Briefly explain exception handling in Java using examples (7)

b. Briefly explain the use of the final modifier in Java using examples (7)

OR

Q4 : Answer the following :

a. Briefly explain what is the static modifier in Java. (7)

(P.T.O)

b. Write a Java program to create a class Vehicle
Data Members
NoofWheels:int

Write a default constructor and an overloaded constructor
Write a get/set method and show method

Create a class Car inheriting from the Vehicle class
Data Members
Brand
Color

Write a default constructor and an overloaded constructor which calls the base class constructor.
Override the show method
Implement Dynamic Method Invocation. (7)

Q5 : Attempt any Seven : (14)

1. What does JVM stand for _____
2. Write the statement to create an String array of 5 elements and initialize it.
3. Given the code:

```
Class Program
{
    public static void main(String[] args)
    {
            int arr[] = {1, 2, 3, 4, 5};
            for(int i=0;i<5;i++)
                    System.out.println(arr[i]+3);
    }
}
```

Will print _____

4. Given the code:

```
public class Test {
   public static void main(String[] args) {
      int[] a = new int[3];
      for(int x : a)
      System.out.print(x);
   }
}
```

5. Given the code:

```
class MathX {
   int add(int a, int b) { System.out.print("a");return a + b; }
   double add(double a, double b) { System.out.print("b");return a + b; }
```

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```
}
public class Test {
   public static void main(String[] args) {
      MathX m = new MathX();
      short a=5,b=7;
     float f=12.6f,h=6.2;
      System.out.println(m.add(a, b));
      System.out.println(m.add(f, h));
   }
}
```

6. What is the type of inheritance supported by Java
7. Difference between overloading and overriding
8. Given the code:

```
class A {
    void print() {
            System.out.println("A");
        }
}
```

```
class B extends A {
    void print() {
            System.out.println("B");
        }
}
```

```
public class Test {
   public static void main(String[] args) {
      B obj = new B();
      obj.print();
   } }
```

What modification should be made print of B class such that the output is
A
B

9. Given the code :
   String s = null;
   System.out.println(s.length());
   Which exception will be thrown
10. Given the code
    class A{
    static int x=25;
    }
    The statement to print x is

    _____

11. Using final modifier before the class leads to _____
12. Finalize method is called by _____

_____