Q.4 i. Define String with example. How to create String object? Why are String objects immutable? **3**

ii. How to create immutable String in JAVA? Explain various ways to Compare two Strings with example. Write a program to concat two String by including all possible ways. **7**

OR iii. What do you mean by mutable String? Write Syntax to create it. Explain following methods of StringBuffer class with Syntax: **7**
(a) append() (b) insert() (c) replace() (d) delete()
(e) capacity()

Q.5 i. Compare Throw and Throws. Write a program to demonstrate use of throws keyword in custom exception. **4**

ii. Explain life cycle of a thread. Write a program to use start(), run(), sleep(), notify(), notifyall() method. **6**

OR iii. What is the use of finally block in exception handling? Write a program with help of nested try-catch-finally and handle ArithmeticException, NullPointerException, NumberFormatException, ArrayIndexOutOfBoundsException **6**

Q.6 Attempt any two:

i. How many ways can we read data from the keyboard? **5**

ii. What do you mean by AWT? Explain hierarchy of AWT classes in detail. **5**

iii. Explain architecture of Applet. How can we initialize and terminate Applet? Explain with example. **5**

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Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2022

CS3CO08 Computer Programming -II

Programme: B.Tech. Branch/Specialisation: CSE / All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Predict the output of following Java program. **1**

```
class Test {
  public static void main(String[] args) {
     for(int i = 0; 0; i++)
     {        System.out.println("Hello");
              break;
   }  } }
```

(a) Hello (b) Empty Output
(c) Compiler error (d) Runtime error

ii. What is the output of this question? **1**

```
class Test1 {
public static void main(String[] args)
      {      int arr[] = new int[5];
             int arr2[] = new int['a'];
             byte bt = 10;
             int arr3[] = new int[bt];
             System.out.print(arr.length+" ");
             System.out.print(arr2.length+" ");
             System.out.print(arr3.length);
      } }
```

(a) Error (b) Runtime Exception
(c) 5 97 10 (d) 5 65 10

iii. Which of the following statements is/are TRUE regarding JAVA? **1**

I. Constants that cannot be changed are declared using the 'static' keyword.

II. A class can only inherit one class but can implement multiple interfaces.

(a) Only I is TRUE. (b) Only II is TRUE.

(c) Both I and II are TRUE. (d) Neither I nor II are TRUE.

iv. Predict the output of following Java program **1**

```
import java.lang.System.*;
class Demo
{
public static void main(String args[])
{                    out.println("hello");
} }
```

(a) Compiler Error (b) Runtime Error

(c) hello (d) None of these

v. Which of these classes is superclass of String and StringBuffer class? **1**

(a) java.util (b) java.lang (c) java.io (d) None of these

vi. Which of these methods of class String is used to obtain length of String object? **1**

(a) get() (b) Sizeof() (c) lengthof() (d) length()

vii. What will be the output of the following program? **1**

```
class Test
{       public static void main(String[] args)
        {       try
                {
                        System.out.println(1/0);        }
                catch(ArithmeticException e)
                {
                        System.out.println(e.getMessage()); }
        }
}
```

(a) java.lang.ArithmeticException

(b) / by zero

(c) java.lang.ArithmeticException:/ by zero

(d) ArithmeticException

viii. What will be the output of the program? **1**

```
class Test extends Thread {
public  void run()      {
                System.out.println("Run");    } }
 class Myclass {
public  static void main(String[] args)
        {       Test t = new Test();
                t.start(); } }
```

(a) One thread created (b) Two thread created

(c) Depend upon system (d) No thread created

ix. Which of these packages contain classes and interfaces used for input & output operations of a program? **1**

(a) java.util (b) java.lang (c) java.io (d) None of these

x. Which of this class is used to read and write bytes in a file? **1**

(a) FileReader (b) FileWriter

(c) FileInputStream (d) InputStreamReader

Q.2 i. Justify the statement with suitable answer- "Write once and Run Everywhere". **2**

ii. Compare C, C++ and JAVA. **3**

iii. What is importance of JVM? Draw architecture of JVM. Explain its component in detail **5**

OR iv. Write a Program to reverse the number at each index of array. (Insert atleast 10 element). **5**

Q.3 i. Why multiple Inheritance is not supported in JAVA? Explain with Program. **3**

ii. Define Interface. Why do we use interface in JAVA? Explain with an example. Create an interface "vehicle" that contains method changeGear() and speedUp(). Implement the interface into two classes "Car" and "Bike". Calculate speed by changing gear for both classes. **7**

OR iii. Define Package. What are the advantages of Package in JAVA? Write a program to create package. Also include various ways to access classes defined in a package. **7**

Marking Scheme CS3CO08 Computer Programming -II

Q.1 i. Predict the output of following Java program. **1**

```
class Test {
  public static void main(String[] args) {
     for(int i = 0; 0; i++)
     {          System.out.println("Hello");
                 break;
     }   } }
```

(c) Compiler error

ii. What is the output of this question? **1**

```
class Test1 {
public static void main(String[] args)
        {       int arr[] = new int[5];
                int arr2[] = new int['a'];
                byte bt = 10;
                int arr3[] = new int[bt];
                System.out.print(arr.length+" ");
                System.out.print(arr2.length+" ");
                System.out.print(arr3.length);
        } }
```

(c) 5 97 10

iii. Which of the following statements is/are TRUE regarding JAVA? **1**

I. Constants that cannot be changed are declared using the 'static' keyword.

II. A class can only inherit one class but can implement multiple interfaces.

(b) Only II is TRUE.

iv. Predict the output of following Java program **1**

```
import java.lang.System.*;
class Demo
{
public static void main(String args[])
{               out.println("hello");
} }
```

(a) Compiler Error

v. Which of these classes is superclass of String and StringBuffer class? **1**

(d) None of these

vi. Which of these methods of class String is used to obtain length of String object? **1**

(d) length()

vii. What will be the output of the following program? **1**

```
class Test
{       public static void main(String[] args)
        {       try
                {
                        System.out.println(1/0);        }
                catch(ArithmeticException e)
                {
                        System.out.println(e.getMessage()); }
        }
}
```

(b) / by zero

viii. What will be the output of the program? **1**

```
class Test extends Thread {
public  void run()      {
                System.out.println("Run");    } }
 class Myclass {
public  static void main(String[] args)
        {       Test t = new Test();
                t.start(); } }
```

(b) Two thread created

ix. Which of these packages contain classes and interfaces used for input & output operations of a program? **1**

(c) java.io

x. Which of this class is used to read and write bytes in a file? **1**

(a) FileReader (b) FileWriter

Q.2 i. Justify the statement with suitable answer **2**

1 mark for each point (1 mark * 2)

ii. Compare C, C++ and JAVA. **3**

At least six point 0.5 mark for each (0.5 mark * 6)

iii. Importance of JVM 1 mark **5**

Architecture of JVM 1 mark

Its component 1 mark for each (1 mark * 3) 3 marks

OR iv. Program to reverse the number at each index of array. **5**

As per program steps and explanation

Q.3 i. Multiple Inheritance is not supported in JAVA 1 mark **3**

Program 2 marks

ii. Definition of Interface 1 mark **7**

Use interface in JAVA 1 mark

		Example	1 mark	
		Program	4 marks	
OR	iii.	Definition of Package	1 mark	**7**
		Advantages of Package in JAVA	1 mark	
		Program to create package	2 marks	
		Ways to access classes defined in a package	3 marks	
Q.4	i.	String with example	1 mark	**3**
		To create String object	1 mark	
		String objects immutable	1 mark	
	ii.	To create immutable String in JAVA	1 mark	**7**
		Various ways to Compare two Strings	3 marks	
		Program to concat two String	3 marks	
OR	iii.	Mutable String	1 mark	**7**
		Syntax to create it	1 mark	
		Methods of StringBuffer class with Syntax:		
		1 mark for each (1 mark * 5)	5 marks	
		(a) append() (b) insert() (c) replace() (d) delete()		
		(e) capacity()		
Q.5	i.	Compare Throw and Throws	1 mark	**4**
		Program to demonstrate use of throws	3 marks	
	ii.	Life cycle of a thread	3 marks	**6**
		Program to use	3 marks	
OR	iii.	Use of finally block in exception handling	1 mark	**6**
		Nested try-catch-finally	1 mark	
		Use of each exception		
		1 mark for each (1 mark * 4)	4 marks	
Q.6		Attempt any two:		
	i.	Ways can we read data from the keyboard		**5**
		5 marks for three ways		
		As per the explanation		
	ii.	AWT	1 mark	**5**
		Hierarchy of AWT classes	2 marks	
		Explanation	2 marks	
	iii.	Architecture of Applet	2 marks	**5**
		Initialize and terminate Applet	3 marks	

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