QPC: RJ20BCA057 AY 20/ AY 21/AY 22 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

B. C. A (Third Semester) Examinations, January 2024

BCA20302 – Object Oriented Programming with JAVA

Time: 3 hrs Maximum: 70 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q. 1 Answer ***ALL*** questions CO # PO #

a. What is the purpose of the "break" statement in Java? CO1 PO2

i. To terminate the loop
ii. To skip the current iteration of the loop
iii. To exit the program
iv. To skip the next iteration of the loop

b. What is the output of the following code snippet? CO1 PO1

```
for (int i = 0; i < 3; i++) {
   for (int j = 0; j < 2; j++) {
      System.out.print(i * j + " ");
   }
   System.out.println();
}
```

i. 0 0 0 1 0 2
ii. 0 0 0 1 1 2
iii. 0 0 0 1 2 3
iv. 0 0 0 1 2 3

c. Inheritance also known as- CO1 PO2

i. IS-A relationship
ii. HAS-A relationship
iii. relationship
iv. non-of these

d. Which method is used to convert a String to an integer in Java? CO1 PO2

i. String.parseInt()
ii. Integer.valueOf()
iii. Integer.parseInt()
iv. Integer.parseString()

e. Which class is used to create a thread in Java by extending the thread class? CO1 PO1

i. Runnable
ii. Thread
iii. Executor
iv. Future

f. Which of the following is not a primitive data type in Java ? CO1 PO1

i. float
ii. double
iii. string
iv. boolean

g. Predict the output of the following code. CO1 PO2

```
String str1 = "Java";
String str2 = new String("Java");
System.out.println(str1 == str2);
```

i. true
ii. false
iii. Compilation error
iv. runtime error

h. What does JVM stand for in the context of Java? CO1 PO1

i. Java Virtual Machine
ii. Java Virtual Memory
iii. Java Visual Model
iv. Java Visual Manager

i. Which keyword is used to define a constant in Java?

i. const
ii. final
iii. static
iv. immutable

j. Which method is used to obtain the length of an array in Java? CO1 PO2

i. size()
ii. length()
iii. sizeof()
iv. lengthof()

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions

		CO #	PO #
a.	Write any two differences between C++ and Java.	CO2	PO1
b.	Predict the output of the following code.	CO2	PO1

```
public class Test
{
    public static void main(String[] args)
    {
        try
        {
            System.out.print("1");
            int sum = 9 / 0;
            System.out.print("2");
        }
        catch(ArithmeticException e)
        {
            System.out.print("3");
        }
        catch(Exception e)
    {
            System.out.print("4");
        }
        finally
        {
            System.out.print("5");
        }
    }
}
```

c.	Briefly explain all the features of Java.	CO2	PO1
d.	What is copy constructor in java.	CO2	PO2
e.	Differentiate between "**implements**" and "**extends**" keywords.	CO2	PO2
f.	Write a program to check whether a person is applicable for giving vote or not.	CO2	PO2
g.	Explain Data abstraction in java.	CO2	PO2
h.	What are the steps involved to create and import a package ?	CO2	PO2
i.	How many types of relationship we have in java and what are those?	CO2	PO1
j.	Define object and class in java.	CO2	OP2

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

Answer ***ALL*** questions

		Marks	CO #	PO #
3.a.	Explain the difference between JDK, JRE, and JVM in Java.	5	CO1	PO1
b.	Write a Java program that prints the following pattern	5	CO1	PO1

```
* * * * * * * * * *

* * * *     * * * *

* * *         * * *

* *             * *

*                 *
```

(OR)

c.	Explain all the characteristics of "Object-oriented programming".	5	CO1	PO1
d.	Write a program to check whether the number is perfect or not.	5	CO1	PO1
4.a.	What is method overloading in Java? Write a program to overload **area()** method, which will calculate the area of a rectangle and square.	5	CO2	PO2
b.	Define constructor and its type in java.	5	CO2	PO1

(OR)

c.	Describe the purpose and usage of 'final' keyword in Java. Explain how it is used for variables, methods, and classes.	5	CO2	PO2
d.	Describe the concept of 'Interfaces' in Java. Explain how they facilitate multiple inheritance.	5	CO2	PO2
5.a.	Discuss the difference between 'HashMap' and 'HashTable' in Java. Provide scenarios where one would be preferred over the other.	5	CO3	PO1
b.	Write a program on multi-level inheritance.	5	CO3	PO1

(OR)

c.	Explain the life cycle of a thread with a neat diagram.	5	CO3	PO2
d.	Describe the purpose and usage of 'try-catch-finally' blocks in Java's Exception Handling.	5	CO3	PO2
6.a	Discuss the various types of loops available in Java. Provide scenarios where each type of loop would be suitable.	5	CO4	PO1
b.	Write a program to check whether the number is an Armstrong number or not.	5	CO4	PO1

(OR)

c.	Explain Encapsulation in java.	5	CO4	PO2
d.	Write a program to read an input String from the user and parse it to an integer, if it is not a number it will throw NumberFormatException, Catch it, and print "Entered input is not a valid format for an integer." or else print the square of that number.	5	CO4	PO2

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