

Sub Code: R2321054

R23

Set No. 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY- GURAJADA VIZIANAGARAM
II B. Tech I Semester Regular Examinations, November – 2024
OBJECT ORIENTED PROGRAMMING THROUGH JAVA
(CSE(AI ML, AI, AI&DS ,CS,DS) AI & DS, AI & ML)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part A, Part B.
Part A is compulsory, Answer all questions.
In Part B, Answer any one question from each unit.

PART-A

(20 Marks)

- 1 a) Briefly explain Java Virtual Machine. [2]
- b) Differentiate between class and object. [2]
- c) What is a constructor? When does the compiler supply default constructor for a class? [2]
- d) Differentiate between inner class and nested class. [2]
- e) Define inheritance. List various types of inheritance. [2]
- f) Differentiate between abstract class and concrete class. [2]
- g) What are the methods available in the character streams? [2]
- h) What is the difference between error and an exception? [2]
- i) How to display text in a window? [2]
- j) Differentiate between sleep () and wait (). [2]

PART-B

(50 Marks)

Unit-1

- 2 a) Discuss clearly on various control statements (along with their syntax) available with Java. [5]
- b) List and explain Java buzzwords. Which factors are making Java famous language? [5]

(OR)

- 3 a) Give the program structure of Java. [5]
- b) What are the drawbacks of procedural languages? Explain the need of object-oriented programming with suitable program. [5]

Unit-2

- 4 a) With examples explain final keyword in terms of class level, method level and variable level? [5]
- b) Differentiate between method overloading and method overriding with an example. [5]

(OR)

- 5 a) Create a class called Complex for performing arithmetic with complex numbers. [10]
Write a JAVA program to test your class. Use floating-point variables to represent the private data of the class. Provide a constructor that enables an object of this class to

be initialized when it's declared.

Provide a no-argument constructor with default values in case no initializers are provided. Provide public methods that perform the following operations:

- i) Add two Complex numbers: The real parts are added together and the imaginary parts are added together.
- ii) Subtract two Complex numbers: The real part of the right operand is subtracted from the real part of the left operand, and the imaginary part of the right operand is subtracted from the imaginary part of the left operand.
- iii) Print Complex numbers in the form (real Part, imageinary Part).

Unit-3

- 6 a) "Abstract classes can be defined without any abstract methods" - support this statement with proper reasoning and with an example program. [5]
- b) "Interfaces are able to extend more than one Interface but a Class can't extend more than one Class" - Why? How Packages differ from Interfaces? [5]

(OR)

- 7 a) Discuss arrays in Java? Write a Java programme to find out transpose of a given matrix. [5]
- b) State the various forms of "super". Explain them with a suitable Java program. [5]

Unit-4

- 8 a) Write an exception subclass which throws an exception if the variable age passed as argument to a method and the value of age is less than 18? Demonstrate it by using a java program? [5]
- b) What is CLASSPATH? Explain its role in finding packages. [5]

(OR)

- 9 a) Write a JAVA program to read from a file named story.txt, split the text into words and store the distinct words as they come into another file named words.txt. [5]
- b) Discuss with an example how to define multiple catch clauses and nested try statements. [5]

Unit-5

- 10 a) Explain event handling along with different event types in java. [5]
- b) Write a java program that creates three threads. First thread displays "Schildt" in every two seconds, the second thread displays "Bala Guru Swamy" in every three seconds, and the third thread displays "Chris Bates" every four seconds. [5]

(OR)

- 11 a) Why the synchronized methods within classes will not work in all cases? What is the alternative? Write a program to discuss the same. [5]
- b) Explore the concept of string classes with an example program. [5]
