

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022

Subject Code:3140705**Date:08-07-2022****Subject Name:Object Oriented Programming -I****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

| | | Marks |
|------------|---|--------------|
| Q.1 | (a) List out features of Java. Explain any two features. | 3 |
| | (b) Write a single program which demonstrates the usage of following keywords: i) import, ii) new, iii) this, iv) break, v) continue Show how to compile and run the program in java. | 4 |
| | (c) Demonstrate use of try-catch construct in case of hierarchical Exception Handling. (i.e handling various exception belongs to the exception hierarchy) | 7 |
| Q.2 | (a) Explain following Java keywords using appropriate examples: i) static, ii) final, iii) super | 3 |
| | (b) Consider class A as the parent of class B. Explain among the following which statement will show the compilation error. i) A a = new A(); ii) A a = new B(); iii) B b = new A(); iv) B b = new B(); | 4 |
| | (c) Write a java program to take infix expressions and convert it into prefix expressions. | 7 |
| OR | | |
| | (c) Write a java program that evaluates a math expression given in string form from command line arguments. | 7 |
| Q.3 | (a) Defines types of inheritance. | 3 |
| | (b) Explain the following constructors using appropriate example: i) Default constructor and Parameterised constructor ii) Shallow copy and Deep copy constructor | 4 |
| | (c) Explain file io using byte stream with appropriate example. hint: use FileInputStream, FileOutputStream | 7 |
| OR | | |
| Q.3 | (a) Define types of polymorphism | 3 |
| | (b) Explain the following: i) Arguments and Parameters of a function ii) Pass by Value and Pass by reference | 4 |

- (c) Explain file io using character stream with appropriate example. 7
hint: use FileReader, FileWriter
- Q.4** (a) Define Encapsulation and access specifier 3
(b) Explain multithreading using Thread class 4
(c) Write a short note on Java Collections. 7
- OR**
- Q.4** (a) Differentiate between Abstract class and Interfaces 3
(b) Explain multithreading using Runnable interface 4
(c) Write a program to add input elements in ArrayList collection class, then sort the inserted elements in descending order and display the sorted output. 7
hint: use Collections.reverseOrder()
- Q.5** (a) Explain following Java keywords using appropriate examples: 3
i) throw, ii) throws, iii) finally
(b) In multi-threading using Thread class, explain with an example how a start() method call invokes the run method of the class extending Thread class. 4
(c) Write a short note on JAVAFX controls. 7
- OR**
- Q.5** (a) Explain thread life cycle 3
(b) In multi-threads using the Runnable interface, explain with an example how a start() method calls the run() method of a class implementing a runnable interface. 4
(c) Develop a GUI based application using JAVAFX controls. 7
