

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Third Semester of B. Tech (CE) Examination

March 2018

CE241 Java Programming

Date: 28.03.2018, Wednesday

Time: 01.30 p.m. To 04.30 p.m.

Maximum Marks: 70

Instructions:

1. The question paper comprises two sections and both must be attempted in separate answer sheets.
2. Make suitable assumptions and draw neat figures wherever required.
3. Write entire option in case of multiple choice and matching questions.

SECTION – I

Q – 1(A) Do as directed:

[05]

1. List four characteristics of object oriented programming language.
2. The output of Java compiler is known as _____.
3. What is JVM? Is JVM platform independent?
4. _____ is the base class of all Java classes.
5. What is the importance of static variable?

Q – 1(B) State whether following statements are True or False.

[05]

1. Java is a strongly typed language and provides security.
2. A package is a collection of classes and interfaces.
3. Methods defined in an interface must be public.
4. Constructors cannot be overloaded.
5. super keyword is used to inherit a class from another class.

Q - 2 Answer the following questions. (Any THREE)

[15]

- (A) List and explain any two features of Java programming language in detail
- (B) Explain the use of **public** and **private** access modifiers to achieve package protection.
- (C) Explain types of inheritance with appropriate example.
- (D) List differences between abstract class and interface.
- (E) Explain the concept of method overloading and method overriding with suitable example.

Q - 3 Answer the following questions. (Any TWO)

[10]

- (A) Write a program to compare two Strings using == and equals() method and print results.
- (B) Define a class **Box** as described below:
Data members: length, width, height
Method: calculateVolume(float, float, float) to calculate and display volume of a Box.
Create class Box with suitable constructors and test it.

(C) Interface **Bank** is designed as follows:

```
interface Bank{
    float rateOfInterest(); //returns interest rate
}
```

Create two classes SBI and AXIS to implement above interface and print results.

SECTION – II

Q – 4 Do as directed.

(A) **Choose appropriate option:**

[04]

1. What is the base class for all Exception?
[java.lang.Exception / java.lang.Throwable / java.lang.Error]
2. Which of these class is used to read and write bytes in a file?
[FileReader / FileInputStream / InputStreamReader]
3. In Java, by default every thread is given a _____.
[MIN_PRIORITY(0) / NORM_PRIORITY(5) / MAX_PRIORITY(10)]
4. Which interface provides the capability to store objects using a key-value pair?
[java.util.Map / java.util.List / java.util.Set]

(B) **Output of following Lambda expression will be ____.**

[02]

```
interface Drawable{
    public void draw();
}

public class LambdaExpressionExample {
    public static void main(String[] args) {
        int width=5;
        Drawable d=new Drawable(){
            public void draw(){
                System.out.println("Drawing shape of width: "+width);
            }
        };
        d.draw();
    }
}
```

(C) **Match the following:****[04]****LIST I****LIST II**

- | | |
|-------------------------|---|
| A. <code>sleep()</code> | 1. Closes the stream |
| B. <code>join()</code> | 2. Causes the current thread to wait until another thread invokes the <code>notify()</code> |
| C. <code>close()</code> | 3. Allows one thread to wait until another thread completes its execution |
| D. <code>wait()</code> | 4. Pauses the execution of current thread for specified time |

Q - 5 Answer the following questions. (Any THREE)**[15]**

- (A) What is Stream? Differentiate between Byte oriented stream and Character oriented stream.
- (B) Explain the situation of exception handling when you need multiple catch blocks with example.
- (C) Define multithreaded programming. Explain thread life cycle with neat and clean diagram and example.
- (D) Differentiate: `ArrayList` and `Vector`
- (E) What are new features available in Java8? Explain any one in detail.

Q - 6 Answer the following questions. (Any TWO)**[10]**

- (A) Write a Java program to perform sum of 1 to N numbers using multithreading concept and print result.
- (B) Create a class named **Student** and store few objects of it in an **ArrayList**. Write a program to display all information about students using `Iterator`. Make appropriate assumptions if required.
- (C) Write a Java program to read the contents of a file character by character using **FileReader** and **FileWriter** classes and copy contents into another file.
