# MARIS STELLA COLLEGE ( AUTONOMOUS), VIJAYAWADA- 8
## ( Affiliated to Krishna University, Machilipatnam)
## SYLLABUS

**Subject: Computer Science**  **Semester: IV**

**Course Title: Object Oriented**  **Course Code: 20CSCCPJ43**
**Programming through Java**

**No. of Hours: 60**  **LTP: 400**  **Credits: 3**

## Objectives
- To introduce the fundamental concepts of Object - Oriented programming.
- To learn basic Java language syntax and semantics to write Java programs.
- To design and implement object oriented programming concepts in Java.

## Course Outcomes
**CO1:** Recall the concepts of object oriented programming and Java syntax.

**CO2:** Apply concepts such as arrays, strings, classes and inheritance.

**CO3:** Develop programs on polymorphism, abstract classes, exceptions and packages.

**CO4:** Make use of the concepts of f ile streams and multi threading.

**CO5:** Develop skills in internet programming using applets and JDBC.

## UNIT – I                                            (12 Hrs.)
**Introduction to OOPs:** Problems in Procedure Oriented Approach, Features of Object- Oriented Programming System ( OOPS)

**Introduction to Java:** Features of Java, The Java virtual Machine, Parts of Java

**Naming Conventions and Data Types:** Naming Conventions in Java, Data Types in Java, Literals

**Operators in Java:** Operators, Priority of Operators

**Control Statements in Java:** if … else Statement, do… while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement

**Input and Output:** Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format() - Programming Exercises

**UNIT – II**                                       **(12 Hrs.)**

**Arrays:** Types of Arrays, arrayname.length, Command Line Arguments

**Strings:** Creating Strings, String Class Methods: Comparision, reverse, length, Concatination

**Classes and Objects:** Object Creation, Initializing the Instance Variables, Access Specifiers in Java, Constructors

**Methods in Java:** Static Methods, The keyword 'this', Passing Primitive Data Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Finalizer Methods

**Inheritance:** Inheritance, The keyword 'super', The ProtectedSpecifier, Types of Inheritance: Single Inheritance, Multi-level Inheritance, Hierarchical Inheritance, Hybrid Inheritance - Programming Exercises

**UNIT – III**                                       **(12 Hrs.)**

**Polymorphism:**Polymorphism with Variables, Polymorphism using Methods, final Class

**Type Casting:** Types of Data Types: Widening and narrowing typecasting

**Abstract Classes:** Abstract Method and Abstract Class

**Interfaces:** Interface, Multiple Inheritance using Interfaces

**Packages:** Package, Different Types of Packages

**Exception Handling:** Errors in Java Program, Exceptions, throw and throws Clause, Types of Exceptions-Programming Exercises

**UNIT – IV**                                       **(12 Hrs.)**

**Streams:** Stream, Creating a File using FileOutputStream, Reading Data from a File using FileInputStream, Creating a File using FileWriter, Re ading a File using File Reader, Counting Number of Characters in a File, File Copy, File Class

**Threads:** Thread Life Cycle, Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Thread Priorities, thread Group-Programming Exercises

**UNIT – V**                                         **(12 Hrs.)**

**Applets:** Applet Life Cycle **,** Creating an Applet, Uses of Applets, <APPLET> tag, A Simple Applet, Animation in Applets, A Simple Game with an Applet

**Java Database Connectivity:** Introduction to JDBC , JDBC Drivers, Working with Oracle Database, Working with MySQL Database, Connecting to a Database: Registering the Driver, Preparing SQL Statements, U sing jdbc–odbc Bridge Driver to Connect to Oracle Database, Retrieving Data from MySQL Database-Programming Exercises

**Co-Curricular Activities**

- Assignments on problem solving
- Student presentations and seminars
- Online quizzes

**Prescribed Book**

1. Deitel & Deitel. Java TM: How to Program, PHI (2007)

**Reference Books**

1. Core Java: An Integrated Approach, Authored by Dr. R. NageswaraRao&Kogent Learning Solutions Inc.
2. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA Mc Graw- Hill Company.
3. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TMH.

**Blueprint**

Subject: Computer Science          Semester: IV

Course Title: Object Oriented          Course Code: 20CSCCPJ43
Programming through Java

Time: 3 Hrs.          Max. Marks: 100

## SECTION – A

Answer **ALL** questions          **20 x 1 = 20M**

| Q. No. | UNIT | Marks Weightage | RBT LEVEL |
|:---:|:---:|:---:|:---:|
| 1 | I | 1 | |
| 2 | I | 1 | |
| 3 | II | 1 | |
| 4 | II | 1 | |
| 5 | III | 1 | |
| 6 | III | 1 | |
| 7 | IV | 1 | **No. of questions to be set** |
| 8 | IV | 1 | RBT1 – 8 |
| 9 | V | 1 | RBT2 – 8 |
| 10 | V | 1 | RBT3 – 2 |
| 11 | I | 1 | RBT4 – 2 |
| 12 | I | 1 | |
| 13 | II | 1 | |
| 14 | II | 1 | |
| 15 | III | 1 | |
| 16 | III | 1 | |
| 17 | IV | 1 | |
| 18 | IV | 1 | |
| 19 | V | 1 | |
| 20 | V | 1 | |

## SECTION – B

Answer any **FOUR** questions                                          **4 x 8 = 32M**

| Q. No. | UNIT | Marks Weightage | RBT LEVEL |
|--------|------|-----------------|-----------|
| 21 | I | 8 | **No. of questions to be set** |
| 22 | II | 8 | RBT1 – 2 |
| 23 | III | 8 | RBT2 – 2 |
| 24 | IV | 8 | RBT3 – 1 |
| 25 | V | 8 | RBT4 – 1 |
| 26 | I / II / III / IV / V | 8 | |

## SECTION – C

Answer any **FOUR** questions                                          **4 x 12 = 48M**

| Q. No. | UNIT | Marks Weightage | RBT LEVEL |
|--------|------|-----------------|-----------|
| 27 | I | 12 | **No. Of questions to be set** |
| 28 | II | 12 | RBT1 – 2 |
| 29 | III | 12 | RBT2 – 2 |
| 30 | IV | 12 | RBT3 – 1 |
| 31 | V | 12 | RBT4 – 1 |
| 32 | I / II / III / IV / V | 12 | |

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Time: **3 Hrs.**                                 Max. Marks: **100**

## SECTION – A

Answer **ALL** the questions                     **20 x 1 = 20 M**

1. What is the valid data type for variable "a" to print "Hello World"?
```
switch(a)
{
System.out.println("Hello World");
}
```
   A. int and float
   B. byte and short
   C. char and long
   D. byte and char

2. Java Source Code is compiled into _____.
   A. .Obj
   B. Source Code
   C. Bytecode
   D. .Exe

3. What is the output of the following code?
```
public class Main{
public static void main(String args[]){
   String s1 = "s1";
   String s2 = s1.concat("s2");
System.out.println(s2);
 }
}
```
   A. s1
   B. s2
   C. s1s2
   D. s1s1

4. Which of the following is a method having same name as that of it's class?
   A. finalize
   B. delete
   C. class
   D. constructor

5. Which of these is correct way of inheriting class A by class B?

A. class B + class A {}

B. class B inherits class A {}

C. class B extends A {}

D. class B extends class A {}

6. If same message is passed to objects of several different classes and all of those can respond in a different way, what is this feature called?

A. Inheritance

B. Overloading

C. Polymorphism

D. Overriding

7. Which of the following is the correct way of implementing an interface salary by class manager?

A. class manager extends salary {}

B. class manager implements salary {}

C. class manager imports salary {}

D. none of the mentioned

8. Which of the following is a super class of all exception type classes?

A. Catchable

B. RuntimeExceptions

C. String

D. Throwable

9. Which method is used to suspend threads that don't need to run when the applet is not visible?

A. destroy()

B. paint()

C. stop()

D. start()

10. Which method registers a thread in a thread scheduler?

A. run();

B. construct();

C. start();

D. register();

11. _____ is a news group from which you can read messages.

12. _____ feature of OOPS derives the class from another class.

13. _____ is the extension of compiled java classes.

14. In Java language, an array index starts with ___.

15. The_____ statement is used to include another Java package in a Java source file.

16. _____ keyword must be used to handle the exception thrown by try block in some rational manner.

17. The output of the Java compiler is executed by the _____.

18. Java supports _____ programming.

19. It is possible to throw an exception explicitly using the _____ statement.

20. The concept _____ is similar to multiple inheritance.

## SECTION – B

Answer any **FOUR** questions                                    **4 x 8 = 32M**

21. Differentiate between procedure oriented programming and object oriented

   programming.

22. Describe about various parts of java.

23. Explain about any 2 string methods with examples.

24. Demonstrate abstract class with example.

25. Explain about types of exceptions.

26. Create a thread, run it and terminate it.

## SECTION – C

Answer any **FOUR** questions                                    **4 x 12 = 48M**

27. Explain in detail about features of Java.

28. Explain in detail about conditional statements with examples.

29. Write a java program demonstrating matrix multiplication and addition.

30. Explain in detail about types of inheritance with examples.

31. Explain different types of packages.

32. Explain about applet life cycle in detail.