Paper Code: ICT312T / ITE356T	**Paper: Java Programming**	**L**	**T/P**	**C**
Paper ID:		**3**	**0**	**3**

Prerequisite Paper:

Marking Scheme:

3. Teacher's Continuous Evaluation: 25 Marks
4. Term End Theory Examination: 75 Marks

Guidelines for Paper Setter(s):

1.There should be 9 questions in the term end examinations question paper.
2.The first question should be compulsory and cover the entire syllabus. This question should be objective, single line answers or short answer type questions of total 15 marks.
3.Apart from question 1 which is compulsory, rest of the paper shall consist of 4 units as per the syllabus. Every unit shall have two questions covering the corresponding unit of the syllabus. However the student shall be asked to attempt only one of the two questions in the unit. Individual questions may contain upto five sub-parts/sub-questions. Each unit will have a marks weightage of 15.
4.The questions are to be framed keeping in view the learning outcomes of the course/paper. The standard/level of questions to asked should be at the level of the prescribed textbook.
5.The requirements of (scientific) calculators/ log-tables/ data- tables may be specified if required.

Course Outcome (CO):

CO 1	Demonstrate a comprehensive understanding of Java programming language, its syntax, and object-oriented principles.
CO 2	Develop Java applications using industry-standard practices, demonstrating proficiency in handling exceptions, input-output operations, and multi-threading.
CO 3	Design and implement object-oriented solutions to programming problems, applying concepts of inheritance, polymorphism, and encapsulation.
CO 4	Utilize Java libraries and frameworks to create efficient, scalable, and well-structured software applications.

Course Outcomes (CO) to Programme Outcomes (PO) Mapping (Scale - 1: Low, 2: medium, 3: High)

CO/PO	PO01	PO02	PO03	PO04	PO05	PO06	PO07	PO08	PO09	PO10	PO11	PO12
CO 1	3	2	2	2	3	-	-	-	3	2	2	3
CO 2	3	2	2	2	3	-	-	-	3	2	2	3
CO 3	3	2	2	2	3	-	-	-	3	2	2	3
CO 4	3	2	2	2	3	-	-	-	3	2	2	3

UNIT - I

Introduction to Java Programming

Introduction to Java, history and advantages, Java development environment setup, basic syntax and data types, control structures (if-else, loops), functions and methods, arrays, strings.

UNIT - II

Object-Oriented Programming in Java

Classes and objects, constructors, method overloading and overriding, encapsulation, inheritance, polymorphism, abstract classes and interfaces, packages and access modifiers.

UNIT - III

Advanced Java Concepts

Exception handling, file I/O operations, multithreading and synchronization, Java collections framework (lists, sets, maps), introduction to lambda expressions, stream API.

UNIT - IV

Java Application Development

GUI programming using Swing, event handling, introduction to JavaFX, database connectivity with JDBC, introduction to networking, web application basics using Servlets and JSP.

Textbook(s):

1. Cay S. Horstmann, "Java Concepts: Late Objects", 3rd edition, Wiley, 2018.
2. Herbert Schildt, "Java: The Complete Reference", 11th edition, McGraw-Hill Education, 2018.

References:

1. Joshua Bloch, "Effective Java", 3rd edition, Addison-Wesley Professional, 2017.
2. Kathy Sierra and Bert Bates, "Head First Java", 2nd edition, O'Reilly Media, 2005.