



Sri Indu

College of Engineering & Technology

UGC Autonomous Institution

Recognized under 2(f) & 12(B) of UGC Act 1956,
NAAC, Approved by AICTE &
Permanently Affiliated to JNTUH



HANDOUT

II Year II Semester

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

ACADEMIC YEAR

2025-2026



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

(Permanently Affiliated to JNTUH, Approved by AICTE, New Delhi and Accredited by NBA, NAAC) Sheriguda Village, Ibrahimpatnam Mandal, Ranga Reddy Dist. - 501 510

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

HANDOUT-INDEX

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SRIINDUCOLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi)

(Permanently Affiliated to JNTUH, Approved by AICTE, New Delhi and Accredited by NBA,

NAAC) Sheriguda Village, Ibrahimpatnam Mandal, Ranga Reddy Dist. – 501510

VISION OF THE INSTITUTE

To be a premier Institution in Engineering & Technology and Management with competency, values and social consciousness.

MISSION OF THE INSTITUTE

- IM1** Provide high quality academic programs, training activities and research facilities.
- IM2** Promote Continuous Industry-Institute interaction for employability, Entrepreneurship, leadership and research aptitude among stakeholders.
- IM3** Contribute to the economic and technological development of the region, state and nation.

VISION OF THE DEPARTMENT

To develop competent engineers in the domain of Artificial Intelligence & Machine Learning for Note worthy contributions to the society.

MISSION OF THE DEPARTMENT

The Department has following Missions:

- DM1** To strengthen academic collaborations for better exposure.
- DM2** Promote professional environment to imbibe ethical values and entrepreneurial skills.
- DM3** Encourage research development by emphasizing on innovation.
- DM4** Facilitate Industry-Institute collaboration for mutual benefit

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- PEO1:** Generate contributions towards advancements in Artificial Intelligence and Machine Learning.
- PEO2:** Promote design, research and implementation of products through strong communication skills, leadership and entrepreneurial skills.
- PEO3:** Apply basic principles and practices of AIML to successfully complete software related projects to meet customer business objectives and/or productively engage in research.

Program Outcomes(POs)

PO1	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences ,and engineering sciences.
PO3	Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate Consideration for the public health and safety ,and the cultural, societal ,and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO8	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multi disciplinary settings.
PO9	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write Effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO10	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply the set o one's own work, as a member and leader in a team, to manage projects and in multi disciplinary environments.
PO11	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program specific Outcomes(PSOs)

PSO1	Register mathematical methodology to crack problems using suitable data structures
PSO2	Competence to design and develop software for web based and mobiles androids under real world environment
PSO3	Skill to design the algorithms for machine learning, data compression can be used in different applications.

COURSE OUTCOMES(CO's)

COURSE NAME: Object Oriented Programming through java
At the end of the course, the student will be able to

Course Outcomes(COs)	
C225.1	Describe the OOPS concepts and primary concepts of java.(Understand)
C225.2	Illustrate the types of inheritance, polymorphism, inner classes and packages (Apply)
C225.3	Justify the solutions to the given problem by applying the multithreading And exception handling mechanism. (Evaluate)
C225.4	Describe Multitasking concepts and Multithreading (Understand)
C225.5	Analyze & Design the concept of Event Handling and Abstract Window Toolkit. (Create)
C225.6	Design java applications by using Applets components (Create)

Outcomes(CO's) with PO's:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C225.1	2	2	2	2	-	-	-	-	2	-	-
C225.2	2	3	3	3	-	-	-	-	2	-	-
C225.3	2	3	3	3	-	-	-	-	2	-	-
C225.4	2	2	2	-	-	-	-	-	-	-	-
C225.5	2	3	3	3	-	-	-	-	2	-	-
C225.6	2	3	3	3	-	-	-	-	2	-	-
C225	2	2.6	2.6	2.3	-	-	-	-	2	-	-

3:High 2. Medium 1.Low

Mapping of Course Outcomes (CO's) with PSO's:

Cos	PSO1	PSO2
C225.1	3	3
C225.2	3	3
C225.3	3	3
C225.4	3	3
C225.5	3	3
C225.6	3	3
	3	3

Academic Calendar

SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING(AI&ML)
ACADEMIC CALENDAR-2025-2026



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
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Sheriguda (V), Ibrahimpatnam, R.R.Dist, Hyderabad - 501 510

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ANNEXURE -III

BR-22

Lr.No.SICET/AUTO/DAE/II^o B.Tech Academic Calendar/30/2025

B.TECH II-YEAR I-SEM & II-SEM ACADEMIC CALENDAR **(FOR ACADEMIC YEAR : 2025-26)**

Academic Calendar for B.Tech – IInd Year Students (2024 - 25 Batch), BR-22 Regulation.

I – Semester

S.No.	EVENT	PERIOD	DURATION
1.	Commencement of class work.	01.08.2025 (Monday)	
2.	1 st Spell of Instructions for covering First Two and a half Units.	01.08.2025 – 07.10.2025	9 Weeks
3.	I Mid Term Examinations.	08.10.2025 – 10.10.2025	3 Days
4.	Submission of I Mid Term Examination Marks.	16.10.2025	
5.	2 nd Spell of Instructions for Remaining Two and a half Units.	13.10.2025 – 13.12.2025	9 Weeks
6.	II Mid Term Examinations.	15.12.2025 – 17.12.2025	3 Days
7.	Preparation Holidays and Practical Examinations	18.12.2025 – 27.12.2025	1 Week
8.	Submission of II Mid Term Examination Marks.	23.12.2025	
9.	I Semester End Examinations.	29.12.2025 – 10.01.2026	2 Weeks
Commencement of Class-Work for II B.Tech - II Semester 19.01.2026			

Note: No of Working/instructional days : 92

II – Semester

S.No.	EVENT	PERIOD	DURATION
1.	Commencement of class work.	19.01.2026 (Monday)	
2.	1 st Spell of Instructions for covering First Two and a half Units.	19.01.2026 – 14.03.2026	8 Weeks
3.	I Mid Term Examinations.	16.03.2026 – 18.03.2026	3 Days
4.	Submission of I Mid Term Examination Marks.	24.03.2026	
5.	2 nd Spell of Instructions for Remaining Two and a half Units.	20.03.2026 – 09.05.2026	7 Weeks
6.	Continuation of remaining 2 nd Spell of Instructions	25.05.2026 – 10.06.2026	2 Weeks
7.	II Mid Term Examinations.	11.06.2026 – 13.06.2026	3 Days
8.	Preparation Holidays and Project Evaluation.	15.06.2026 – 20.06.2026	1 Week
9.	Submission of II Mid Term Examination Marks.	18.06.2026	
10.	II Semester End Examinations	22.06.2026 – 04.07.2026	2 Weeks

Note: No of Working/instructional days : 92


ACE


CE


DIRECTOR


PRINCIPAL

Controller of Examination
Sri Indu College of Engineering & Technology
(An Autonomous Institution Under UGC)
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

DIRECTOR
Sri Indu College of Engineering & Technology
(An Autonomous Institution Under UGC)
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

PRINCIPAL
Sri Indu College of Engineering & Technology
(An Autonomous Institution Under UGC)
Sheriguda (V), Ibrahimpatnam, R.R. Dist-501510.

Sign: 

Dr. M.V.S.S. Giridhar

Prof. of CEA; JNTUH Nominee

Sign: 

Dr. T. Venu Gopal

Prof. of CSE; JNTUH Nominee

Sign: 

Dr. D. Ramesh

Prof. of CSE; JNTUH Nominee

(Copy to DAP&E and Copy to all the Dept. Heads)

SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING(AI&ML)
DEPARTMENT CALENDAR-2025-2026(SEMESTER-II)

SUNDAY					1		1										
MONDAY	1				2		2							1			
TUESDAY	2				3	II YR CRT TRAINING	3	II YR CRT TRAINING		Apr-26				2	II YR TRAINING		Jul-26
WEDNESDAY	3			Jan-26	4		4	HOLI HOLIDAY	1					3		1	II-II & III-II SEM END EXAMS
THURSDAY	4		1	NEW YEAR HOLIDAY	5		5		2	II YR TRAINING		May-26		4		2	II-II & III-II SEM END EXAMS
FRIDAY	5	AI CLUB MEETING	2		6	II YR CRT TRAINING	6	II YR CRT TRAINING	3	GOOD FRIDAY HOLIDAY	1	IV-II MID II EXAMS		5	II YR TRAINING	3	II-II & III-II SEM END EXAMS
SATURDAY	6	DEPARTMENT MEETING	3		7	AI CLUB MEETING	7		4	AI CLUB MEETING	2	IV-II MID II EXAMS		6		4	II-II & III-II SEM END EXAMS
SUNDAY	7	HOLIDAY	4	HOLIDAY	8	HOLIDAY	8	HOLIDAY	5	HOLIDAY	3	HOLIDAY		7	HOLIDAY	5	HOLIDAY
MONDAY	8		5		9		9		6		4	IV-II PREPARATION HOLIDAYS		8		6	
TUESDAY	9		6		10	II YR CRT TRAINING	10	II YR CRT TRAINING	7	II YR TRAINING	5	IV-II PREPARATION HOLIDAYS		9		7	
WEDNESDAY	10		7		11		11		8		6	IV-II PREPARATION HOLIDAYS		10		8	
THURSDAY	11		8		12		12		9		7	SUBMISSION OF MID-II MARKS		11	II-II&III-II MID II EXAM	9	
FRIDAY	12		9		13	II YR CRT TRAINING	13	II YR CRT TRAINING	10	II YR TRAINING	8	IV-II PREPARATION HOLIDAYS		12	II-II&III-II MID II EXAM	10	
SATURDAY	13		10	DEPARTMENT MEETING	14		14		11	DEPARTMENT MEETING	9	IV-II PREPARATION HOLIDAYS		13	II-II&III-II MID II EXAM	11	DEPARTMENT MEETING
SUNDAY	14	HOLIDAY	11	HOLIDAY	15	HOLIDAY	15	HOLIDAY	12	HOLIDAY	10	HOLIDAY		14	HOLIDAY	12	HOLIDAY
MONDAY	15	IV-II COMMENCEMENT WORK	12		16	IV-II MID I EXAM	16	II & III-II MID I EXAM	13		11	IV-II SEM EXAMS		15	II-II&III-II PREP HOILDDAYS & PROJECT EVALUATION	13	
TUESDAY	16		13	PONGAL HOLIDAYS	17	IV-II MID I EXAM& II YR TRAINING	17	II & III-II MID I EXAM,II YR TRAINING	14	DR.AMBEDKAR JAYANTI HOLIDAY	12	IV-II SEM EXAMS		16	II-II&III-II PREP HOILDDAYS & PROJECT EVALUATION	14	
WEDNESDAY	17		14	PONGAL HOLIDAYS	18	IV-II MID I EXAM	18	II & III-II MID I EXAM	15		13	IV-II SEM EXAMS		17	II-II&III-II PREP HOILDDAYS & PROJECT EVALUATION	15	
THURSDAY	18		15	PONGAL HOLIDAYS	19	IV-II 2ND SPELL	19		16		14	IV-II SEM EXAMS		18	II-II&III-II PREP HOILDDAYS & PROJECT EVALUATION	16	
FRIDAY	19		16	PONGAL HOLIDAYS	20	II YR CRT TRAINING	20	II -II & III-II/ II SPELL INSTRUCTIONS	17	II YR TRAINING	15	IV-II SEM EXAMS,		19	II-II&III-II PREP HOILDDAYS & PROJECT EVALUATION	17	

SATURDAY	20		17	PONGAL HOLIDAYS	21		21		18		16	IV-II SEM EXAMS	20	II-II&III-II PREP HOLIDAYS & PROJECT EVALUATION	18	
SUNDAY	21	HOLIDAY	18	HOLIDAY	22	HOLIDAY	22	HOLIDAY	19	HOLIDAY	17	HOLIDAY	21	HOLIDAY	19	HOLIDAY
MONDAY	22		19	II & III-II COMMENCEMENT WORK	23		23		20		18		22	II-II & III-II SEM END EXAMS	20	
TUESDAY	23		20		24	SUBMISSION OF IV-II MID I MARKS, II YR TRAINING	24	SUBMISSION OF III-II MID I MARKS	21	II YR TRAINING	19	II YR TRAINING	23	II-II & III-II SEM END EXAMS	21	
WEDNESDAY	24		21		25		25		22		20		24	II-II & III-II SEM END EXAMS	22	
THURSDAY	25	CHRISTMAS HOLIDAY	22		26		26		23		21		25	II-II & III-II SEM END EXAMS	23	
FRIDAY	26	BOXING DAY HOLIDAY	23	AI CLUB MEETING	27	II YR CRT TRAINING	27	II YR TRAINING	24	II YR TRAINING	22	II YR TRAINING	26	MUHARRAM HOLIDAY	24	
SATURDAY	27	DEPARTMENT MEETING	24		28	DEPARTMENT MEETING	28		25		23		27	II-II & III-II SEM END EXAMS	25	
SUNDAY	28	HOLIDAY	25	HOLIDAY		HOLIDAY	29	HOLIDAY	26	HOLIDAY	24	HOLIDAY	28	HOLIDAY	26	HOLIDAY
MONDAY	29		26	REPUBLIC DAY			30		27		25		29	II-II & III-II SEM END EXAMS	27	
TUESDAY	30		27	II & III YR CRT TRAINING			31	II YR TRAINING	28	II YR TRAINING	26	II YR TRAINING	30	II-II & III-II SEM END EXAMS	28	
WEDNESDAY	31	AI CLUB MEETING	28	II & III YR CRT TRAINING					29	AI CLUB MEETING	27	BAKRID HOLIDAY			29	
THURSDAY			29	II & III YR CRT TRAINING					30	IV-II MID II EXAMS	28				30	
FRIDAY			30	II & III YR CRT TRAINING							29	II YR TRAINING			31	
SATURDAY			31	II & III YR CRT TRAINING							30					
SUNDAY		HOLIDAY		HOLIDAY		HOLIDAY		HOLIDAY		HOLIDAY	31	HOLIDAY		HOLIDAY		HOLIDAY

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Faculty In-charge

HOD/___AIML___

Principal

SYLLABUS

BR22 – B.TECH. – CSE(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution under UGC, New Delhi)

B.Tech. - II Year – II Semester

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(R22CSE2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Course Objectives

- To Understand the basic object-oriented programming concepts and apply them in problemsolving.
- To Illustrate inheritance concepts for reusing the program.
- To Demonstrate multitasking by using multiple threads and event handling
- To Develop data-centric applications using JDBC.
- To Understand the basics of java console and GUI based programming

Course Outcomes

- Demonstrate the behavior of programs involving the basic programming constructs like control structures, constructors, string handling and garbage collection.
- Demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by using extend and implement keywords
- Use multithreading concepts to develop inter process communication.
- Understand the process of graphical user interface design and implementation using AWT or swings.
- Develop applets that interact abundantly with the client environment and deploy on the server.

UNIT - I

Object oriented thinking and Java Basics- Need for oop paradigm, summary of oop concepts, coping with complexity, abstraction mechanisms. A way of viewing world – Agents, responsibility, messages, methods, History of Java, Java buzzwords, data types, variables, scope and lifetime of variables, arrays, operators, expressions, control statements, type conversion and casting, simple java program, concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, method binding, inheritance, overriding and exceptions, parameter passing, recursion, nested and inner classes, exploring string class.

UNIT - II

Inheritance, Packages and Interfaces – Hierarchical abstractions, Base class object, subclass, subtype, substitutability, forms of inheritance specialization, specification, construction, extension, limitation, combination, benefits of inheritance, costs of inheritance. Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes, the Object class. Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces. Exploring java.io.

UNIT - III

Exception handling and Multithreading-- Concepts of exception handling, benefits of exception handling, Termination or resumptive models, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception subclasses. String handling, Exploring java.util. Differences between multithreading and multitasking, thread life cycle, creating threads, thread priorities, synchronizing threads, inter thread communication, thread groups, daemon threads. Enumerations, autoboxing, annotations, generics.

UNIT - IV

Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes. The AWT class hierarchy, user interface components- labels, button, canvas, scrollbars, text components, check box, checkbox groups, choices, lists panels – scrollpane, dialogs, menubar, graphics, layout manager – layout manager types – border, grid, flow, card and grid bag.

SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

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BR22 – B.TECH. – CSE(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

UNIT - V

Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets. Swing – Introduction, limitations of AWT, MVC architecture, components, containers, exploring swing- JApplet, JFrame and JComponent, Icons and Labels, text fields, buttons – The JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

TEXT BOOKS:

1. Java the complete reference, 7th edition, Herbert schildt, TMH.
2. Understanding OOP with Java, updated edition, T. Budd, Pearson education.

REFERENCE BOOKS:

1. An Introduction to programming and OO design using Java, J.Nino and F.A. Hosch, John wiley & sons.
2. An Introduction to OOP, third edition, T. Budd, Pearson education.
3. Introduction to Java programming, Y. Daniel Liang, Pearson education.
4. An introduction to Java programming and object-oriented application development, R.A. Johnson- Thomson.
5. Core Java 2, Vol 1, Fundamentals, Cay.S. Horstmann and Gary Cornell, eighth Edition, Pearson Education.
6. Core Java 2, Vol 2, Advanced Features, Cay.S. Horstmann and Gary Cornell, eighth Edition,

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SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
LESSON PLAN
(Regulation :R22)
Department of Artificial Intelligence & Machine Learning

**Prepared
on
Jan 10th
2026**

Sub. Code & Title	R22CSE2115–Object Oriented programming through JAVA
Academic Year: 2025-26	Year/Sem./Section II-II AIML
Faculty Name & Designation	J Preethi, Asst. Professor

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RB T
			From	To				
UNIT-I			13					
1.1	Introduction to subject: Objectives, Outcomes	T1	3	5	Black board	1		CO1/L1
1.2	Object Oriented Programming Concepts.	T1	6	7	Black board	1		CO1/L1
1.3	Procedural and Object Oriented Paradigms	T1	8	8	Black board	1		CO1/L1
1.4	History of JAVA, Java Buzzwords	T1	11	11	Black board	1		CO1/L1
1.5	Data Types, Variables, constants, Scope and Life time of variables	T1	12	14	Black board	1		CO1/L1
1.6	Creating a simple java program, compiling and running	T1	15	16	Presentation	1		CO1/L6
1.7	Operators, expressions, Type conversion and casting	T1	26	28	Presentation	1		CO1/L6
1.8	Control Statements, String handling, Super uses	T1	28	29	Presentation	1		CO1/L6
1.9	Arrays, types of arrays	T1	29	32	Black board	1		CO1/L6
1.10	Classes and objects, Concepts of classes, constructors and methods	T1	32	40	Black board	2		CO1/L6
1.11	Access control, this keyword, garbage collection	T1	40	45	Blackboard	2		CO1/L6
1.12	Inheritance definition, Types of Inheritance	T1	59	63	Black board	1		CO1/L2
1.13	Forms of inheritance	T1	63	68	Black board	1		CO1/L2
1.14	Super classes and sub class Members, abstract methods	T1	69	73	Black board	2		CO1/L2
1.15	Preventing inheritance: final class and abstract classes	T1	73	74	Black board	1		CO1/L2
1.16	Benefits of Inheritance, Costs of Inheritance	T1	74	86	Black board	1		CO1/L2
1.17	Polymorphism: Ad-hoc polymorphism, Pure polymorphism, Dynamic Binding	T1	86	91	Black board	2		CO1/L2

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
UNIT-II 12								
2.1	Packages, CLASSPATH Access Protection, Import packages.	T1	98	102	Black board	1		CO2/L1
2.2	Interfaces, Defining and Implementing an Interface	T1	102	108	Black board	1		CO2/L1,L3
2.3	Nested Interfaces, Applying and Extending Interfaces	T1	108	115	Black board	2		CO2/L3,L2
2.4	Inheritance Types of Inheritance ,Forms of Inheritance	T1	108	115	Black board	2		CO2/L3,L2
2.5	Stream based I/O-Stream classes, Byte streams, Character streams	T1	115	124	Presentatio n	1		CO2/L2
2.6	Reading Console Input And Writing Console Output ,File class	T1	124	136	Black board	1		CO2/L2
2.7	Reading and Writing Files,Random Access File Operations, Serialization, Enumeration ,Auto Boxing,Data base Connectivity	T1	136	145	Black board	2		CO2/L2
	Review	Signature of the HOD/Coordinator						

Unit/ Item No.	Topic (s)	Book Referen ce	Pa ge (s)		Teaching Methodolog y	Proposed No. of Periods	Actual Date of Handle d	CO/RBT
			From	To				
UNIT-III					12			
3.1	Exception handling ,Types of exceptions	T1	146	152	Black board	1		CO3/L2
3.2	Concepts of Exception handling, Exception hierarchy	T1	152	165	Black board	1		CO3/L2
3.3	usage of try, catch, throw ,throws, finally keywords	T1	165	177	Black board	2		CO3/L2
3.4	Built in Exceptions, Creating own Exception subclasses	T1	177	191	Black board	1		CO3/L2
3.5	Differences between multiple Processes and Multiple threads	T1	191	210	Black board	1		CO3/L2
3.6	Thread life cycle, creating multiple threads by using thread class	T1	210	220	Presentation	2		CO3/L2
3.7	Creating multiple threads by using Runnable interface	T1	220	231	Black board	2		CO3/L2
3.8	Interrupting threads and thread priorities	T1	231	246	Black board	2		CO3/L2
3.9	Synchronization	T1	246	250	Black board	1		CO3/L1
3.10	Inter thread communication	T1	250	261	Presentation	1		CO3/L1
3.11	Dealing with errors and benefits of Exception Handling	T1	261	275	Black board	2		CO3/L1
3.12	Concepts of Exception handling, Exception hierarchy	T1	275	280	Black board	1		CO3/L1



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY
LESSON PLAN
(Regulation :R22)
Department of Artificial Intelligence & Machine Learning

**Prepared
on
Jan 10th
2026**

Sub. Code & Title	R22CSE2115–Object Oriented programming through JAVA
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Academic Year: 2025-26	Year/Sem./Section	II-II AIML
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Year/Sem./Section | II-II AIML

Faculty Name & Designation	J Preethi, Asst. Professor
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J Preethi, Asst. Professor

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled	CO/RBT
			From	To				
UNIT-IV					12			
4.1	Event Handling, classes and listeners	T1	281	291	Black board	1		CO5/L3
4.2	Delegation Event Model	T1	291	305	Black board	1		CO5/L13
4.3	Mouse and keyboard events	T1	305	315	Black board	2		CO5/L3
4.4	Adapter classes	T1	315	327	Black board	1		CO5/L3
4.5	AWT hierarchy	T1	327	336	Black board	1		CO5/L3
4.6	User Interface components button	T1	336	349	presentation	2		CO5/L3
4.7	Scroll bar components, components	T1	349	358	presentation	2		CO5/L3
4.8	Check boxes, choices, List panels	T1	358	369	presentation	1		CO5/L3
4.9	Dialogs, menubar, graphics	T1	369	378	presentation	1		CO5/L3
4.10	Layout manager types	T1	378	386	presentation	1		CO5/L3
4.11	Border, Grid, flow card layouts	T1	386	392	presentation	1		CO5/L3
	Review	Signature of the HOD/Coordinator						

Unit/ Item No.	Topic (s)	Book Reference	Page (s)		Teaching Methodology	Proposed No. of Periods	Actual Date of Handled
			From	To			
UNIT-V					12		
5.1	Concept of Applets,differences between applets and applications	T1	392	409	Black board	1	
5.2	Life cycle of an applets,creating an applets	T1	409		Presentation		
5.3	Types of Applets and example programs	T1	416	426	Black board	2	
5.4	Passing parameters to applets.	T1	426	438	Black board	1	
5.5	Creating aSwingApplet,PaintinginSwing	T1	438	449	Black board	1	
5.6	AppletsandHTML,SecurityIssues,A ppletsandApplications	T1	449	458	Black board	2	
5.7	Introduction, Limitations of AWT,MVCarchitecture, components, containers	T1	458	469	Black board	2	
5.8	APaint example ,ExploringSwingControls-JLabelandImageIcon,JTextField	T1	469	480	Black board	1	
5.9	JRadiobutton,JTabbed Pane, JScroll Pane	T1	480	492	Black board	2	

5.10	JCombo Box, Swing Menus, Dialogs	T1	492	509	Presentation	2	
5.11	JCheckbox, JToggle Button, Swing Application.	T1	509	518	Black board	2	
	Review	Signature of the HOD/Coordinator					

TEXTBOOKS:

1. Java The complete reference, 9th edition, Herbert Schildt, McGraw Hill Education(India) Pvt.Ltd.
2. Understanding Object-Oriented Programming with Java ,updated edition, T.Budd, Pearson Education.

REFERENCEBOOKS:

1. An Introduction to programming and OOD design using Java, J.Nino and F.A.Hosch, John Wiley & sons
2. Introduction to Java programming, Y.Daniel Liang, Pearson Education.
3. Object Oriented Programming through Java, P.Radha Krishna, University Press.
4. Programming in Java, S.Malhotra, S.Chudhary, 2nd edition, Oxford Univ.Press.
5. Java Programming and Object-oriented Application Development, R.A.Johnson, Cengage Learning.

Web links:

1. <https://nptel.ac.in/courses/106105191>
2. <https://www.coursera.org/specializations/core-java>
3. <https://nlist.inflibnet.ac.in/search/Record/EBC5121453>
4. <https://nptel.ac.in/courses/106/105/106105175/>

List of Power Point Presentations

S.No	Topic Name	No.Of Slides
1	Introduction and Overview of Event handling	30
2	Differences between multiple Processes and Multiple threads	30

CONTENT BEYOND THE SYLLABUS

S.No	Topics	ProposedActions	Date	ResourcePerson/ Mode	Pos	PSOs
1	Introduction andOverviewof Event Handling	Seminar	25-03-2025	Dr. Naresh	PO1,PO2,PO3	PSO1,PSO2
2	Differencesb etweenmulti pleProcesses andMultiple Threads	Seminar	2-4-2025	Dr. Naresh	PO1,PO2,PO3	PSO1,PSO2

ASSIGNMENT QUESTIONS MID-I&II

S.No	Assignment Questions	Course Outcome	Books To be Referred	Date Of Announcement	Date Of Submission
1	Compare procedural and Objectorientedprogrammingparadigm.	CO1	T1	3/03/2025	18/03/2025
2	Comparethesimilaritiesbetweenmethodov erloadingandconstructoroverloading	CO1	T1	3/03/2025	18/03/2025
3	Developajavaprogramforconstructoroverloadingandmet hodooverloading?	CO1	T1	3/03/2025	18/03/2025
4	What is java package? What is CLASSPATH?Explainhowtcreateandaccessaja vpackage withanexample?	CO1	T1	3/03/2025	18/03/2025
5	Differentiatemulti-processingandmulti-threading.	CO2	T1	3/03/2025	18/03/2025
6	Developajavaprogramthathandlethe“Divide-by-zero” exception.	CO2	T1	3/03/2025	18/03/2025
7	Explainthefollowing. sleep()b)yield() c)notify()d)notifyAll()	CO3	T1	3/03/2025	18/03/2025
8	Withsyntax, explainthefollowingutilityclasses. StringTokenizer b)DateandCalendarc)Sca nner	CO3	T1	3/03/2025	18/03/2025
9	develop an applet that receives tree numeric values asinput from the user and display the largest of thethreeonthescreen.	CO4	T1	3/03/2025	18/03/2025
10	Explainthefollowingclasses:JFrameb)JAppletc)JPa nel	CO4	T1	3/03/2025	18/03/2025

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	Academic year: 2025-2026	Year & Sem:II II	
	Faculty Name & Designation	J PREETHI,ASSISTANT PROFESSOR	

QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)
 (1.Remembering 2.Understanding 3. Applying 4.Analyzing
 5.Evaluating 6.Creating)

UNIT-I: OBJECT ORIENTED THINKING AND JAVA BASICS			
	Multiple Choice Questions	BT Level	Course Outcome
1C-1	Which of the following is not an OOPS concept in Java? [] a) Polymorphism b) Inheritance c) Compilation d) Encapsulation	I	CO1
1C-2	Which environment variable is used to set the java path? [] a) MAVEN Path b) Java PATH c) JAVA d) JAVA_HOME	I	CO1
1C-3	What is the extension of java code files? [] a) .js b) .txt c) .class d) .java	I	CO1
1C-4	What is not the use of “this” keyword in Java? [] a) Referring to the instance variable when a local variable has the same name b) Passing itself to the method of the same class c) Passing itself to another method d) Calling another constructor in constructor chaining	I	CO1
1C-5	What is the extension of compiled java classes? a) .txt	I	CO1

	b) .js c) .class d) .java		
1C-6	Which of the following is a Super class of every class in Java? [] a) Array List b) Abstract class c) Object class d) String	I	CO1
1C-7	Which one of the following is not an access modifier? [] a) Protected b) Void c) Public d) Private	I	CO1
1C-8	What is the numerical range of a char data type in Java? [] a) 0 to 256 b) -128 to 127 c) 0 to 65535 d) 0 to 32767	I	CO1
1C-9	What is the return type of Constructors? [] a) int b) float c) void d) none of the mentioned	I	CO1
1C-10	Which of the following is a method having same name as that of its class? [] a) finalize b) delete c) class d) constructor	I	CO1
1C-11	Which of the following is a garbage collection technique? [] a) Cleanup model b) Mark and sweep model c) Space management model d) Sweep model	I	CO1
1C-12	Garbage Collection can be controlled by a program? [] a) True	I	CO1

	b) False		
1C-13	Which of these is an incorrect array declaration? [] a) int arr[] = new int[5] b) int [] arr = new int[5] c) int arr[] = new int[5] d) int arr[] = int [5] new	I	CO1
1C-14	Which of the following loops will execute the body of loop even when condition controlling the loop is initially false? [] a) do-while b) while c) for d) none of the mentioned	I	CO1
1C-15	Which of the following is a valid declaration of an object of class Box? [] a) Box obj = new Box(); b) Box obj = new Box; c) obj = new Box(); d) new Box obj;	I	CO1

Fill in the blanks			
1F-1	The output of the Java compiler is known as -----	I	CO1
1F-2	----- refers to the standard input.	I	CO1
1F-3	The mechanism of binding data with the code that manipulates it is known as -----	I	CO1
1F-4	URL stands for -----.	I	CO1
1F-5	The output of the Java compiler is executed by the -----.	I,II	CO1
1F-6	----- is the java compiler.	I	CO1
1F-7	----- means data hiding.	I	CO1

1F-8	The ability to take more than one forms is called -----	I	CO1
1F-9	Every object has a _____ and _____.	I	CO1
1F-10	The six relational operator symbols are _____.	I	CO1
1F-11	= symbol is _____operator.	I	CO1
1F-12	Java offers three selection statements: _____	I	CO1
1F-13	Java defines four types of integers: _____	I	CO1
1F-14	In Java a group of statements may be enclosed in braces to form a _____	I	CO1
1F-15	When two different objects interpret a single message differently and respond differently, it is known as _____	I	CO1
Match the following			
1M-1	Match the following. a) Java 1) is a tool for debugging java program b) Javah 2) is a tool for creating C-like header files c) Javap 3) runs java byte code d) jdb 4) prints java code representation	II	CO1
1M -2	Match the following. a) Array 1) Acquiring properties from base class b) Inheritance 2) More than one form c) Polymorphism 3) Non-primitive data type d) Encapsulation 4) Wrapping up of data	II	CO1
1M -3	Match the following. a) Public 1) Accessing the data members inside the class b) Private 2) within the same package or subclasses in different packages. c) Default 3) Accessing the data members & member functions outside the class d) Protected 4) when we don't use any keyword explicitly.	II	CO1
1M -4	Match the following. a) 1Megabyte 1) 1024 gigabyte b) 1Gigabyte 2) 1024 kilobyte	II	CO1

	c) 1Terabyte 3) 1024 terabyte d) 1Petabyte 4) 1024 megabyte		
1M -5	Match the following. a) Class 1) Instance of an class b) Object 2) Combination of data members and member functions c) Abstract class 3) Java Virtual Machine d) JVM 4) Abstract keyword	II	CO1
5 - MARKS QUESTIONS			
1D-1.	a) Explain about Features of Java(buzzwords). b) Explain type conversion and casting.	II II	CO1
1D-2.	a) Explain about OOPs concepts , b) Define Methods and give example	II I	CO1
1D-3.	Explain about Operators in java.	II	CO1
1D-4.	a) What is variable and types? Explain Scope and Life time of variables. b) Explain the concept of nested and inner classes?	II II	CO1
1D-5.	a) Compare Procedural and Object oriented programming paradigm. b) Explain Array and types of arrays in Java?	IV II	CO1
1D-6.	a) Explain Abstraction mechanisms with example? b) Discuss Datatypes,Expressions.	II II	CO1
1D-7.	a) Write short notes on “new” , “this” , ”static”, keywords in Java? b) Explain overriding and exceptions?	I,II	CO1
1D-8	Explain about Constructors in Java and types of constructors with an example.	II	CO1
1D-9	a) Compare the similarities between Method overloading and Method Overriding b) Explain about JVM Architecture.	V II	CO1
1D-10	a) Explain different Access controls with examples? b) Define Inheritance with example?	II,I	CO1
1D-11	Discuss Control statements	II	CO1
1D-12	a) Write a java program to find the Factorial of a given number by using Recursion. b) Explain overloading methods and constructors?	I II	CO1
1D-13	a) Develop a java program to find the Matrix Multiplication. b) Write a java program on single inheritance.	V I	CO1
1D-14	a) Discuss Method binding with example? b) Explain exploring string class with example?	II, II	CO1
1D-15	a) Define Garbage collection b) Explain parameter passing methods through example.	I II	CO1

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QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)

(1.Remembering 2.Understanding 3. Applying 4.Analyzing
5.Evaluating 6.Creating)

UNIT-II: INHERITANCE,PACKAGES,INTERFACES			
	Multiple Choice Questions	BT Level	Course Outcome
2C-1	Which of this keyword must be used to inherit a class? [] a) super b) this c) extent d) extends	I	CO2
2C-2	A class member declared protected becomes a member of subclass of which type? [] a) public member b) private member c) protected member d) static member	I	CO2
2C-3	Which of these keywords is used to define packages in Java? [] a) pkg b) Pkg c) package d) Package	I	CO2
2C-5	Which of this access specifier can be used for a class so that its members can be accessed by a different class in the same package? [] a) Public b) Protected c) No Modifier d) All of the mentioned	I	CO2
2C-6	Which of the following package stores all the standard java classes? [] a) lang b) java c) util	I	CO2

	d) java.packages		
2C-7	Which of these can be used to fully abstract a class from its implementation? a) Objects [] b) Packages c) Interfaces d) None of the Mentioned	I	CO2
2C-8	Which of these access specifiers can be used for an interface? [] a) Public b) Protected c) private d) All of the mentioned	I	CO2
2C-9	Which of these is not abstract? [] a) Thread b) Abstract List c) List d) None of the Mentioned	I	CO2
2C-10	Which of these packages contains abstract keyword? [] a) java.lang b) java.util c) java.io d) java.system	I	CO2
2C-11	Which type of inheritance results in the diamond problem? [] a) Single level b) Hybrid c) Hierarchical d) Multilevel	I	CO2
2C-12	Which system property stores installation directory of JRE? [] a) user.home b) java.class.path c) java.home d) user.dir	I	CO2
2C-13	What is the process of defining a method in a subclass having same name & type signature as a method in its superclass? [] a) Method overloading	I	CO2

	b) Method overriding c) Method hiding d) None of the mentioned		
2C-14	Which of these keywords can be used to prevent Method overriding? [] a) static b) constant c) protected d) final	I	CO2
2C-15	Which of these is supported by method overriding in Java? [] a) Abstraction b) Encapsulation c) Polymorphism d) None of the mentioned	I	CO2

Fill in the blanks			
2F-1	A _____ variable is a variable that is shared by all objects of a class.	I	CO2
2F-2	Every object in Java has a _____ method that can be used to return a String representation of it.	I	CO2
2F-3	The term _____ refers to the fact that a variable can hold objects of different types.	I	CO2
2F-4	In an _____, by default, all methods are abstract.	I	CO2
2F-5	Every class is part of some _____.	I,II	CO2
2F-6	While creating a package, you should choose a name for the package and include a _____ statement	I	CO2
2F-7	The import statements must appear after the _____ statement and before the _____ declaration.	I	CO2
2F-8	A class ____ an interface, while a class ____ an abstract class.	I	CO2
2F-9	An Interface cannot contain a _____ methods.	I	CO2
2F-10	All variables and methods in an Interface are _____ Modifiers.	I	CO2

2F-11	The _____ keyword is used to extend an interface, and the child interface inherits the methods of the parent interface.	I	CO2
2F-12	The _____ keyword is used to refer to the parent class of a subclass.	I	CO2
2F-13	CLASSPATH is an environment variable which is used by Application Class Loader to locate and load the .class files.	I	CO2
2F-14	An _____ leads to less development and maintenance costs.	I	CO2
2F-15	All variables like local, instance, and static variables can be _____ variables.	I	CO2
Match the following			
2M-1	Match the following 1) Inheritance a) Used to specify the behavior of class 2) Interface b) Importing classes or interfaces 3) Package c) importing entire package 4) Import pkg.* d) Default package 5) java.lang e) Acquiring the properties from Parent to child	II	CO2
2M -2	Match the following 1) java.applet a) provides for system input & output 2) java.awt b) creating and modifying image 3) java.awt.image c) Contains collection frameworks 4) java.io d) Provides graphical user interface 5) java.util e) To create the applet and classes	II	CO2
2M -3	Match the following 1) CLASSPATH a) provides for system input & output 2) public static final b) creating and modifying image 3) public abstract c) An environment variable 4) Multilevel inheritance d) more than one base classes 5) Multiple inheritance e) more than one parent classes	II	CO2
2M -4	Match the following 1) Default method a) extension method 2) Static method b) it can't be overridden by sub class 3) Final method c) a method that belongs to a class method. 4) Super keyword d) current object in a method 5) This keyword e) it refers to super class objects.	II	CO2
2M -5	Match the following 1) Single inheritance a) not supportable in java 2) Multiple inheritance b) one base class , one derived class 3) Hierarchical inheritance c) one base class, intermediate class, derived class 4) Multilevel inheritance d) single inheritance, hierarchical inheritance 5) Hybrid inheritance e) one base class, multiple derived classes.	II	CO2

5 - MARKS QUESTIONS

2D-1.	Define Inheritance and its types with an example.	I	CO2
2D-2.	Define Packages and types of packages.	II	CO2
2D-3.	Explain in detail about Hierarchical abstractions with example program	II	CO2
2D-4.	Discuss about Base class object , sub class, sub type and substitutability in java	II	CO2
2D-5.	Explain about Forms of Inheritance in detail.	II	CO2
2D-6.	a) Explain abstract class b) Illustrate Object class	II I	CO2
2D-7.	Discuss about benefits, cost of Inheritance	II	CO2
2D-8.	How to creating, accessing and importing the packages with an example.	VI	CO2
2D-9.	a) Differentiate between classes and interfaces b) Discuss Exploring java.io.	IV II	CO2
2D-10.	Explain about uses of “Super” and “Final” keyword with an example	II	CO2
2D-11.	Explain about Polymorphism and types of Polymorphism.	II	CO2
2D-12.	a) Differentiate between Method overriding and Abstract classes. b) Which are Member access rules	IV I	CO2
2D-13.	a) How to set CLASSPATH in an environment variables b) Does Java Support Multiple Inheritance?-Justify your answer	III	CO2
2D-14.	Define an interfaces, implementing the interfaces, applying the interfaces in java.	III	CO2
2D-15.	Discuss about variables in Interface and Extending Interfaces	II	CO2

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QUESTION BANK WITH BLOOMS TAXONOMY LEVEL (BTL)
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UNIT-III: EXCEPTION HANDLING AND MULTITHREADING			
	Multiple Choice Questions	BT Level	Course Outcome
3C-1	What is the main purpose of exception handling in Java? [] a. To encourage unchecked exceptions b. To avoid writing any error-handling code c. To handle runtime errors gracefully d. To crash the program when an error occurs	I	CO3
3C-2	Which of the following is not a part of exception handling in Java? [] a. try b. catch c. throw d. static	I	CO3
3C-3	In the context of exception handling, what is a "checked exception"? [] a. An exception that is checked at compile-time b. An exception that is checked at runtime c. An exception that is never checked d. An exception that doesn't need to be caught	I	CO3
3C-4	Which keyword is used to explicitly throw an exception in Java? [] a. throws b. throw c. try d. catch	I	CO3
3C-5	Which block in Java's exception handling is used to execute code regardless of whether an exception occurs or not? [] a. try b. catch c. finally d. throw	I	CO3

3C-6	What is the top-level class in the Java exception hierarchy? [] a. Error b. Exception c. Throwable d. Runtime Exception	I	CO3
3C-7	What is the primary benefit of multithreading in Java? [] a. It simplifies complex algorithms b. It makes your program run faster on a single-core processor c. It allows you to execute multiple threads simultaneously d. It eliminates the need for exception handling	I	CO3
3C-8	What is the term for the state in the thread life cycle where a thread is waiting for a specific condition to be met? [] a. Runnable b. Blocked c. Waiting d. Terminated	I	CO4
3C-9	How can you create a thread in Java by implementing multithreading? [] a. By extending the Thread class b. By implementing the Runnable interface c. By using the Executor Service class d. By calling the start () method.	II	CO4
3C-10	What is the range of thread priorities in Java? [] a. 1 to 5 b. 0 to 10 c. -1 to 1 d. Any positive integer	I	CO4
3C-11	What is synchronization in Java used for? [] a. It makes threads run faster b. It ensures that only one thread can access a shared resource at a time c. It is a type of exception d. It is used for printing output to the console	I	CO4
3C-12	Which Java feature is used for inter-thread communication? [] a. break and continue b. wait, notify, and notify All c. Exception chaining d. Auto-casting	I	CO4
3C-13	What is the purpose of a Daemon thread in Java? [] a. To handle exceptions b. To execute a specific task once c. To run in the background and provide services to other threads d. To perform high-priority operations	I	CO4
3C-14	What are Java enumerations primarily used for? [] a. Representing a group of named constant values b. Creating threads	I	CO4

	c. Handling exceptions d. Defining new data types		
3C-15	What is Auto boxing in Java? [] a. A way to pack objects into a box b. Automatic conversion between primitive data types and their corresponding wrapper classes c. A feature for optimizing thread synchronization d. A way to improve exception handling	I	CO4

Fill in the blanks			
3F-1	Exception handling is a mechanism used to handle ____ errors or exceptional situations in Java.	II	CO3
3F-2	The primary benefit of exception handling is to handle runtime errors _____.	II	CO3
3F-3	The keyword used to explicitly throw an exception in Java is _____.	II	CO3
3F-4	The block in Java's exception handling that is used to execute code regardless of whether an exception occurs or not is the _____ block.	II	CO3
3F-5	The top-level class in the Java exception hierarchy is _____.	II	CO3
3F-6	Multithreading in Java allows you to execute _____ threads simultaneously.	II	CO3
3F-7	In the thread life cycle, a thread waiting for a specific condition to be met is in the _____ state.	II	CO3
3F-8	To create a thread in Java using multithreading, you can implement the _____ interface.	II	CO4
3F-9	Thread priorities in Java typically range from _____ to _____.	III	CO4
3F-10	Synchronization in Java is used to ensure that only _____ thread can access a shared resource at a time.	III	CO4
3F-11	_____ and _____ are methods used for inter-thread communication in Java.	III	CO4
3F-12	A daemon thread in Java is primarily used to run in the background and provide services to other _____.	III	CO4
3F-13	Enumerations in Java are primarily used for representing a group of named _____ values.	III	CO4
3F-14	Auto boxing in Java is the automatic conversion between _____ data types and their	III	CO4

	corresponding ____ classes.		
3F-15	The _____ package in Java contains various utility classes and data structures, including collections, date and time classes.	III	CO4
Match the following			
3M-1	Match the following 1) Class 2) Exceptions 3) Errors 4) Object 5) Checked exceptions a) Checked and unchecked exceptions b) Compile time exceptions c) Exceptions and errors d) JVM crashes and Assertion errors e) Collection of data members and member functions	II	CO3
3M -2	Match the following 1) try block 2) catch block 3) finally block 4) throw block 5) throws block a) Must be executed b) It contains exception thrown out of method c) throw an exception try to catch d) Can raise exceptions e) Receive and handle exceptions	II	CO3
3M -3	Match the following 1) Start () 2) Sleep() 3) run() 4) join() 5) isAlive() a) wait for a thread to terminate b) start thread by calling its run method c) Determine if a thread is still running d) Suspend a thread for a period of time e) Entry point for the thread	II	CO4
3M -4	Match the following 1) New state 2) Ready state 3) Running state 4) Waiting state 5) Halted state a) memory is allocated for the thread. b) thread is about to entering into the main memory c) thread has completed its execution d) thread is under the control of the CPU. e) thread is waiting for the remaining CPU burst time.	II	CO4
3M -5	Match the following 1) charAt () 2) getChars() 3) getBytes() 4) toCharArray() 5) regionMatches() a) to extract more than one character at a time from a string. b) to extract a single character from a string. c) it returns an array of characters for the entire string. d) to store the characters in an array of bytes. e) it compares a specific region inside a string with another specific region in another string	II	CO4
5 - MARKS QUESTIONS			
3D-1.	Explain the concept of Exception handling in Java. What are the main benefits of using exception handling in Java programming?	II	CO3
3D-2.	Describe the two models of exception handling: Termination or Resumptive. Provide examples of situations where each model is appropriate.	III	CO3

3D-3.	Discuss the Java exception hierarchy. What is the significance of the Throwable class, and how does it relate to Error and Exception?	II	CO3
3D-4.	A) How can you create your own custom exception subclass in Java? Provide an example of when and why you might create a custom exception. B) Explain built in exceptions in java?	VI II	CO3
3D-5.	Explain the purpose of the try, catch, and finally blocks in Java's exception handling. Provide a code example to illustrate their usage.	II	CO3
3D-6.	What is multithreading in Java, and how does it differ from multitasking? Provide examples of scenarios where you would use multithreading.	I	CO4
3D-7.	Describe the life cycle of a thread in Java. What are the different states a thread can be in, and what transitions occur between these states?	III	CO4
3D-8	Discuss the concept of thread priorities in Java. What do thread priorities influence, and how can they be set and used in a program?	I	CO4
3D-9	How can you create threads in Java? Compare and contrast extending the Thread class and implementing the Runnable interface.	I	CO4
3D-10	Explain the purpose of thread synchronization in Java. Provide examples of scenarios where synchronization is necessary and how it is achieved.	II	CO4
3D-11	a) Differentiate between Multithreading and Multitasking. b) Explain autoboxing?	IV II	CO4
3D-12	a) Explain about String Handling in java. b) Discuss Exploring java.util.	II II	CO4
3D-13	a) Explain about Thread groups in Multithreading. b) Explain Enumerations ?	II II	CO4
3D-14	Explain about Annotations and Generics in Java	II	CO4
3D-15	Explain about Inter-thread communication., daemon threads.	II	CO4

	SRI INDU COLLEGE OF ENGG & TECH QUESTION BANK (Regulation :R22) DEPARTMENT OF AIML		(Regulation :R22) Prepared on :10/1/2026 Rev1: 10/1/2026 Page: 35 of 7
	Sub.Code & Title	(R22CSE 2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA	
	Academic Year: 2025-2026	Year/Sem: II-II	
	Faculty Name & Designation	J PREETHI,ASSISTANT PROFESSOR	

UNIT-IV: EVENT HANDLING			
	Multiple Choice Questions	BT Level	Course Outcome
4C-1	What is an event in Java? [] a) A graphical element on the screen b) A type of exception c) An occurrence or action d) A user interface component	I	CO5
4C-2	Which of the following is not an event source in Java? [] a) Button b) Mouse c) Text Field d) Window	I	CO5
4C-3	Which class represents a mouse event in Java? [] a) Keyboard Event b) Action Event c) Mouse Event d) Event Source	I	CO5
4C-4	Which of the following is an example of an event listener interface? [] a) Event Adapter b) Action Listener c) Event Source d) Event Generator	I	CO5
4C-5	In Java event handling, what is the delegation event model? [] a) It's a model that delegates event handling to the operating system. b) It's a model where event sources delegate event handling to registered listeners. c) It's a model that delegates event handling to the user interface thread. d) It's a model used for database event handling.	I	CO5
4C-6	Which event type is used for mouse clicks? [] a) Action Event b) Key Event c) Mouse Event d) Window Event	I	CO5

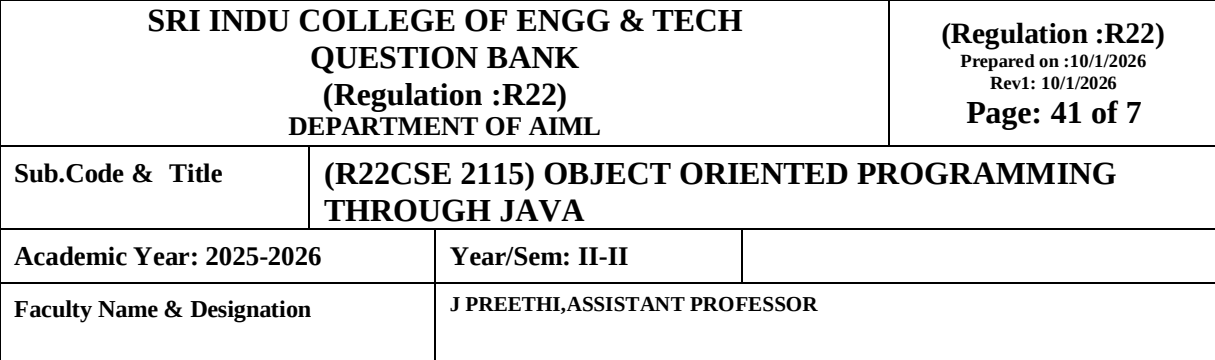
4C-7	Which class is used for implementing event listeners more conveniently by providing empty methods for all listener methods? [] a) Event Listener Adapter b) Event Adapter c) Adapter Class d) Action Listener	I	CO5
4C-8	In the AWT class hierarchy, what is the base class for all GUI components? [] a) Component b) Container c) Window d) Frame	I	CO5
4C-9	Which AWT layout manager is typically used for arranging components in a grid? [] a) Flow Layout b) Border Layout c) Grid Layout d) Card Layout	I	CO5
4C-10	Which AWT component is used to display a single-line text message or label? [] a) Button b) Label c) Text Field d) Canvas	I	CO5
4C-11	Which AWT component is used for selecting options from a drop-down list? [] a) Choice b) List c) Scrollbar d) Panel	I	CO5
4C-12	What is the purpose of a Check box Group in AWT? [] a) It is used to group checkboxes in a panel. b) It is used to create a group of radio buttons. c) It is used for selecting options from a drop-down list. d) It is used to create buttons.	I	CO5
4C-13	Which layout manager is useful for arranging components in a top-to-bottom or left-to-right order, depending on the container's orientation? [] a) Border Layout b) Grid Layout c) Flow Layout d) Grid Bag Layout	I	CO5
4C-14	Which AWT component is used to add scrollbars to a container when the contents exceed the visible area? [] a. Panel b. Scroll Pane c. Frame d. Canvas	I	CO5

4C-15	Which AWT component is used to display a pop-up menu in a graphical user interface? [] a. Label b. Dialog c. Menu Bar d. Choice	I	CO5
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Fill in the blanks			
4F-1	An_____is an occurrence or action in Java that can be triggered by various sources.	I	CO5
4F-2	Event sources are objects or components that generate_____.	I	CO5
4F-3	Java,_____classes are used to represent different types of events, such as ActionEvent, Mouse Event, Key Event, etc.	I	CO5
4F-4	Event listeners are interfaces or classes that handle specific_____.	I	CO5
4F-5	The_____Event Model is a model where event sources delegate event handling to registered event listeners.	I,II	CO5
4F-6	Mouse events include actions like mouse clicks, mouse_____, and mouse dragging.	I	CO5
4F-7	Adapter classes provide a convenient way to implement event listeners by offering empty methods for all the methods in an_____.	I	CO5
4F-8	In the AWT class hierarchy, the base class for all GUI components is_____.	I	CO5
4F-9	The_____layout manager is used for arranging components in a grid.	I	CO5
4F-10	A single-line text message or label is typically represented in AWT by the _____	I	CO5
4F-11	The AWT component used for selecting options from a drop-down list is called_____.		
4F-12	A_____is used in AWT to group checkboxes, allowing only one option to be selected at a time.	I	CO5
4F-13	The_____layout manager is useful for arranging components in a top-to-bottom or left-to-right order, depending on the container's orientation.	I	CO5
4F-14	AWT's_____component is used to add scrollbars to a container when the content exceeds the visible area.	I	CO5
4F-15	To display a pop-up menu in a graphical user interface using AWT, you would typically use a_____.	I	CO5
Match the following			
4M-1	Match the following 1) Button 2) Check box 3) Text components 4) List 5) Menu item	a) Generates item events b) Generates action events by clicking c) When an item is double clicked d) when the item selected or deselected e) when user enters a character	II CO5
4M -2	Match the following 1) Event 2) Listener 3) Source	a) Describes a state change b) Is an object that generates an event c) Notified when an event occurs	II CO5

	4)Event Object 5)Adjustment Event	d) Is generated by a scroll bar e)Is super class of all events		
4M -3	Match the following 1) Item Listeners 2) Event Listeners 3) Delegation Event Model 4) Windows Listeners 5) Focus Listeners	a) Deactivated, activated, open or quit. b) recognize when the state of an Item changes. c) component gains or losses keyboard focus d) a source generates an Event and send it to one or more Listeners e) java. awt. event.	II	CO5
4M -4	Match the following 1) Mouse Motion listener 2) Mouse Wheel Listener 3) Text Listener 4) Window Focus Listener 5) Window Listener	a) it gains or losses input focus b) it is activated or deactivated. c) mouse dragged, mouse moved d) mouse wheel is moved e) change occurs in a text area.	II	CO5
4M -5	Match the following 1) Component Adapter 2) Focus Adapter 3) Key Adapter 4) Mouse Adapter 5) Container Adapter	a) mouse listener b) container listener c) component Listener d) key Listener e) focus Listener	II	CO5
5 - MARKS QUESTIONS				
4D-1.	Define Event handling?Discuss the key components of the Java event handling model, including event sources, eventclasses, and event listeners. Provide examples of each component.		II	CO5
4D-2.	How does the Delegation Event Model work in Java? Explain how event delegation simplifies event handling in GUI applications.		III	CO5
4D-3.	Explain the following AWT user components with their syntax and constructors i) Label j) Button k) Checkbox l) Canvas		II	CO5
4D-4.	How the events of mouse and keyboard can be handled explain with example?.		III	CO5
4D-5.	Explain the role of adapter classes in Java event handling. How do adapter classes simplify the implementation of event listeners?		IV	CO5
4D-6.	Discuss the AWT class hierarchy for creating graphical user interfaces in Java.		V	CO5
4D-7.	Explain the following with example: a) Scrollbars		I	CO5

	b) Text components		
4D-8	Discuss different layout manager types in java,including border,grid,flow,card and grid bag with suitable example?	II	CO5
4D-9	Explain checkgroups ,checkbox, choices with example?	II	CO5
4D-10	Explain the purpose of the Scroll Pane component in AWT. How does it help in managing scrollable content within a GUI application, and provide an example of its usage?	II	CO5
4D-11	Explain about Dialog Boxes in Event handling with example?	II	CO5
4D-12	Develop an Applet that receives an integer in one text field & compute its factorial value & returns it in another text field when the button “Compute” is clicked.	VI	CO5
4D-13	Write a program to create a simple applet to display a smiley picture using Graphics class methods.	VI	CO5
4D-14	Write short notes on Scroll bars in AWT.	I	CO5
4D-15	Discuss Menu bars in Event handling with example?	II	CO5



(1.Remembering 2.Understanding 3. Applying 4.Analyzing
5.Evaluating 6.Creating)

UNIT-V: APPLETs			
	Multiple Choice Questions	BT Level	Course Outcome
5C-1	What is the primary purpose of Java applets? [] a) Running standalone applications b) Creating web-based user interfaces c) Running server-side scripts d) Developing mobile applications	I	CO6
5C-2	Which method is not a part of the applet's lifecycle? [] a) init() b) start() c) run() d) stop()		CO6
5C-3	Which type of applet can be embedded in a web page? [] a) Standalone applet b) Mobile applet c) Embedded applet d) Local applet	I	CO6
5C-4	In Java applets, what method is used to retrieve parameters passed from an HTML page? [] a) getParameter() b) fetchParameter() c) readParameter() d) getHTMLParameter()	I	CO6
5C-5	What is the primary motivation behind the creation of Swing as a GUI framework in Java? [] a) To replace the AWT framework b) To provide a platform-independent and modern GUI framework	I	CO6

	c) To work only with native platform components d) To simplify the server-side development		
5C-6	Which architectural pattern is followed by Swing for GUI development? [] a) Model-View-Controller (MVC) b) Model-View-View Model (MVVM) c) Model-Controller-View (MCV) d) Model-Presenter-View (MPV)	I	CO6
5C-7	Which Swing class represents a top-level window that can be used in a desktop application? [] a) JPanel b) JFrame c) JApplet d) Jwindow	I	CO6
5C-8	Which Swing class is commonly used to display text and images in a GUI? [] a) JLabel b) JTextPane c) JTextComponent d) JTextArea	I	CO6
5C-9	Which Swing component is used for user input of single-line text? [] a) JField b) JTextField c) JTextPane d) JTextArea	I	CO6
5C-10	Which Swing component is suitable for creating push buttons in a GUI? [] a) JButton b) JToggle c) JCheckBox d) JradioButton	I	CO6
5C-11	What is the Swing component used for selecting multiple options from a list? [] a) JToggle b) JCheckBox c) JRadioButton d) Jlist	I	CO6
5C-12	Which Swing component is used to display hierarchical data in a tree-like structure? [] a) JTree b) JTable c) JList d) Jpane	I	CO6
5C-13	Which Swing component is used for displaying tabular data in a grid? []	I	CO6

	a) JTable b) JGrid c) JList d) Jpane		
5C-14	What Swing component is suitable for creating a container with multiple tabs to organize content? [] a) JTabbedPane b) JMenuBar c) JScrollPane d) JtabBar	I	CO6
5C-15	Which Swing component is used to provide scrolling functionality for displaying content that doesn't fit in the visible area? [] a) JScrollPane b) JScrollPane c) JScrollBar d) JScrollContainer	I	CO6

Fill in the blanks			
5F-1	Java ____ are small programs that can be embedded in web pages to create interactive content.	I	CO6
5F-2	The primary purpose of Java applets is for ____ user interfaces.	I	CO6
5F-3	Applets have a lifecycle that includes methods like init(), start(), stop(), and ____.	I	CO6
5F-4	Embedded applets can be included in ____ web pages.	I	CO6
5F-5	In Java applets, you can retrieve parameters passed from an HTML page using the ____ method.	I,II	CO6
5F-6	Swing was introduced to overcome the limitations of the ____ framework	I	CO6
5F-7	Swing follows the ____ architectural pattern for GUI development	I	CO6
5F-8	A top-level window used in desktop applications is represented by the ____ class in Swing	I	CO6
5F-9	To display text and images in a Swing GUI, you can use the ____ class.	I	CO6
5F-10	For user input of single-line text in Swing, the ____ component is commonly used.	I	CO6

5F-11	_____ are used to create push buttons in a Swing GUI.	I	CO6
5F-12	_____ is used to display hierarchical data in a tree-like structure	II	CO6
5F-13	To display tabular data in a grid, you can use the _____ component.	II	CO6
5F-14	A container with multiple tabs to organize content is created using the _____ component.	I	CO6
5F-15	To provide scrolling functionality for content that doesn't fit in the visible area, Swing uses the _____ component	I	CO6
Match the following			
5M-1	) Match the following 1) JComponent a) Light weight 2) JFrame b) Abstract Button super class 3) AWT c) Heavy weight 4) Swing d) AWT Frame class 5) JButton e) Container and one of the base classes of swing	II	CO6
5M -2	Match the following in AWT control fundamentals 1) Labels a) methods are setText(),getText(). 2) Push buttons b) methods are setLabel(),getLabel() 3) Check boxes c) methods are setValue(),getValue() 4) Choice lists d) methods are setState(),getState() 5) Scroll bars e) methods are getSelectedItem()or getSelectedIndex()	II	CO6
5M -3	Match the following in AWT classes 1) AWTEvent a) manages colors in a portable 2) AWTEventMulticaster b) a blank, symantics-free window 3) Canvas c) creates a pop-up list 4) Choice d) encapsulates AWT events 5) Color e) dispatches events to multiple Listeners	II	CO6
5M -4	Match the following in AWT classes 1) Menu a) creates a menu item 2) Menubar b) encapsulates a keyboard shortcut for a menu item. 3) MenuComponent c) creates a pulldown menu 4) MenuItem d) creates a menu bar. 5) MenuShortcut e) an abstract class implemented by various menu classes	II	CO6
5M -5	Match the following in Life cycle of an Applet 1) init () a) it destroys the Applet program 2) Start() b) initialization of an Applet 3) Stop () c) execution of an Applet code. 4) Destroy() d) it minimizes the Applet code 5) To run an Applet e) by HTML file, Applet viewer tool	II	CO6

5 - MARKS QUESTIONS

5D-1.	Explain concept of Applets? Differentiate between Java applets and applications.	IV	CO6
5D-2.	Illustrate Applet lifecycle with neat diagram? And types of applets?	I	CO6
5D-3.	a) How to create an Applet in Applet Viewer and passing Parameters into an Applet.	II	CO6
	b) Difference between component and container.	IV	CO6
5D-4.	Why was Swing introduced, and what problem does it address compared to AWT?	II	CO6
5D-5.	What does the Model-View-Controller (MVC) architecture aim to achieve in GUI development?	IV	CO6
5D-6.	a) Define AWT and limitations of AWT.	V	CO6
	b) Difference between JApplet and JFrame	IV	CO6
5D-7.	Discuss various swing components and containers used to build GUI.	II	CO6
5D-8	Discuss the functionalities of swing components such as JButton, JTextField, JLabel ,JRadio buttons with example	II	CO6
5D-9	Name one Swing component used for selecting multiple options from a list.	V	CO6
5D-10	Write a java program on JButton class and Check boxes.	I	CO6
5D-11	Write a java program on JComboBoxes and Tabbed panes.	II	CO6
5D-12	Write a java program on Scroll pane,Icons in Applets	I	CO6
5D-13	Write a java program on JComponents in Applets	III	CO6
5D-14	Explain about Trees and Tables in Applets with an example.	II	CO6
5D-15	Explain about AWT classes.	II	CO6

BR-22 SRIINDUCOLLEGE OFENGINEERING&TECHNOLOGY D4
(AnAutonomousInstitutionUnder2(f)and12(B) ofUGCAct1956,NewDelhi)
II B.Tech-II Semester –Mid Term Examinations(Model paper)
(R22CSE 2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Duration: 2hr

MaxMarks:30M

PART – A

Answer ALL multiple choice questions.

10Q X ½ M=5M

1. Which of the following is not an OOPS concept in Java? []
 - a) Polymorphism
 - b) Inheritance
 - c) Compilation
 - d) Encapsulation
2. What is not the use of “this” keyword in Java? []
 - a) Referring to the instance variable when a local variable has the same name
 - b) Passing itself to the method of the same class
 - c) Passing itself to another method
 - d) Calling another constructor in constructor chaining
3. What is the extension of compiled java classes? []
 - a) .txt
 - b) .js
 - c) .class
 - d) .java
4. Which one of the following is not an access modifier? []
 - a) Protected
 - b) Void
 - c) Public
 - d) Private
5. Which of this keyword must be used to inherit a class?
[]
 - a) super
 - b) this
 - c) extent
 - d) extends
6. Which of these can be used to fully abstract a class from its implementation?
[]
 - a) Objects
 - b) Packages
 - c) Interfaces
 - d) None of the Mentioned
7. Which of these packages contains abstract keyword?
[]

- a) java.lang
- b) java.util
- c) java.io
- d) java.system

8. Which of these keywords can be used to prevent Method overriding? []

I,CO2

- a) static
- b) constant
- c) protected
- d) final

9. Which keyword is used to explicitly throw an exception in Java? []

I,CO3

- a) throws
- b) throw
- c) try
- d) catch

10. What is the purpose of a Daemon thread in Java? [] I,CO4

- a) To handle exceptions
- b) To execute a specific task once
- c) To run in the background and provide services to other threads

To perform high-priority operations

II. Answer all fill in the blanks.

6Q X ½ M= 3M

1. The output of the Java compiler is known as -----
2. ----- means data hiding.
3. Every class is part of some -----.
4. A class ____ an interface, while a class ____ an abstract class.
5. Exception handling is a mechanism used to handle ____ errors or exceptional situations in Java
6. The top-level class in the Java exception hierarchy is _____.

III. Answer all the Match the following Questions.

2Q X 1M = 2M

17. Match the following.

- | | |
|--------------|------------------|
| a) 1Megabyte | 1) 1024 gigabyte |
| b) 1Gigabyte | 2) 1024 kilobyte |
| c) 1Terabyte | 3) 1024 terabyte |
| d) 1Petabyte | 4) 1024 megabyte |

18. Match the following

- | | |
|-----------------------------|--|
| 1) Single inheritance | a) not supportable in java |
| 2) Multiple inheritance | b) one base class , one derived class |
| 3) Hierarchical inheritance | c) one base class, intermediate class, derived class |

- 4) Multilevel inheritance d) single inheritance, hierarchical inheritance
- 5) Hybrid inheritance e) one base class, multiple derived classes.

PART-B

Answer any FOUR questions

4Qx5M=20M

- | | |
|--|--------|
| 19. Explain about the features of Java? | CO1,L4 |
| 20. Write a java program to print hello world message? | CO1,L2 |
| 21. Compare class and Interface with example. | CO2,L2 |
| 22. Explain in detail about input character stream classes with examples. | CO2,L2 |
| 23. Define packages, creating, accessing and importing the packages with an example. | CO2,L1 |
| 24. How can you create your own custom exception subclass in Java? Provide an example of when and why you might create a custom exception. | CO3,L1 |

BR 22 SRIINDUCOLLEGE OF ENGINEERING & TECHNOLOGY**(An Autonomous Institution under UGC, New Delhi)****II B.Tech -II Semester –End Examinations****Model paper****Subject Name: Object Oriented Programming through JAVA****(R22CSE2115)****Time: 3 Hours****Max Marks: 60M****Part-A Answer all the questions****(10QX1M= 10Marks)**

		Marks	Course outcome.	BT Level
1	List any two applications of oops.	1	CO1	II
2.	Define Inheritance	1	CO1	I
3.	Define polymorphism	1	CO2	I
4.	Explain Abstract class	1	CO2	I
5.	Differentiate Checked and Unchecked Exception	1	CO3	IV
6.	Write about Event Listeners in java	1	CO3	I
7.	Differentiate between Component and Container	1	CO4	IV
8.	Differentiate between Grid layout and BorderLayout managers	1	CO4	IV
9.	What is JButton	1	CO6	I
10.	Explain about MVC architecture	1	CO6	II

Part –B**Answer five questions choosing at least one from each unit****(5QX10M=50Marks)**

UNIT-I 6. Compare procedural and Objectoriented programming paradigm (OR) 7.Explain Constructors and types with example?	(10)	CO1 CO1	IV II
UNIT–II 8. Explain in detail about input character stream classes with examples OR 9. Define inheritance.and types of inheritance with example	(10)	CO2 CO2	II I

UNIT- III	(10)	CO3	II
10. Explain the following. a) sleep() b) yield() c) notify() d)notify All() (OR)		CO4	VI
11. Create a program to illustrate how to implement 'Runnable' interface in thread..			
UNIT- IV	(10)	CO5	II
12. What is the role of Event Listeners in event handling? List the java Event Listeners (OR)		CO5	IV
13.Explain about different types of Layout managers in java			
UNIT- V	(10)	CO6	VI
14.Design a user interface to collect data from the student for admission application using swing components (OR)		CO6	II
15. Explain the lifecycle of an Applet with a neat diagram			

s.no	Bloom Taxonomy Level	No ofQuestions	%	Nameand Signature ofPapersetter
1	Fundamental Knowledge from Leve II& II	8	53.3	
2	Knowledge an application and analysis from Leve III&IV	4	26.7	
3	CriticalthinkingandabilitytodesignfromLevelV&VI	3	20	

HOD Sign



SRI INDU COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution under UGC, New Delhi) - Recognized under 2(f) and 12(B) of UGC Act 1956

II B.Tech. I Semester (REGULAR) End Examinations, JA/FEB - 2024.

(R22CSE2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

07/02/2024

(For CSE, CS, AIDS & DS)

Day- 5 (FN)

Duration: 3 Hrs

Maximum Marks: 60M

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Applying, IV-Analyzing, V-Evaluating and VI-Creating)

Course Outcomes : CO

PART - A

Answer ALL the following questions.

(10Qx1M=10M)

- | | | |
|--|-----|-----|
| 1. a) Why is abstraction important in OOP? | I | CO1 |
| b) Define one Java buzzword. | III | CO1 |
| c) Provide an example of an interface in Java. | VI | CO2 |
| d) What is the significance of the "super" keyword in inheritance? | I | CO2 |
| e) Define 'throws'. | II | CO3 |
| f) Name one benefit of exception handling in Java. | I | CO3 |
| g) What does the delegation event model simplify in Java? | III | CO4 |
| h) Define scrollpane component. | II | CO4 |
| i) Explain the concept of passing parameters to Java applets. | III | CO5 |
| j) Draw the life cycle of a Java applet? | II | CO5 |

PART - B

Answer FIVE questions choosing at least one from each unit.

(5Qx10M=50M)

- UNIT-I**
- 2a. Define and discuss the roles of agents, responsibility, messages, and methods in object-oriented thinking. Provide brief examples to illustrate each concept. III CO1
- (OR)
- 2b. Explain in detail about Overloading methods and Constructors. II CO1
- UNIT-II**
- 3a. Discuss about Defining, Implementing and Applying interfaces with suitable examples. III CO2
- (OR)
- 3b. Explore the role of packages in Java. Discuss the influence of CLASSPATH on package accessibility. Provide examples to illustrate these concepts. III CO2
- UNIT-III**
- 4a. Discuss the hierarchy of exceptions in Java, including built-in exceptions and the creation of custom exception subclasses. IV CO3
- (OR)
- 4b. Compare and contrast multithreading and multitasking in Java. Explain the life cycle of a thread and the importance of synchronization. III CO3
- UNIT-IV**
- 5a. Define and discuss about Adapter classes and the AWT class hierarchy. Explain the key methods involved and their significance. I CO4
- (OR)
- 5b. Discuss different layout manager types in Java, including border, grid, flow, card, and grid bag with suitable examples. VI CO4
- UNIT-V**
- 6a. Explore the MVC architecture in Swing, discussing the roles of models, views, and controllers. Provide a detailed example. III CO5
- (OR)
- 6b. Discuss the functionalities of Swing components such as JButton, JTextField, and JLabel. Give examples. I CO5

Part - A**Answer All multiple choice questions.****Marks: 10Qx1/2M = 5M**

* (L1-Remembering, L2-Understanding, L3-Applying, L4-Analyzing, L5-Evaluating, and L6-Creating.)

- | | | Blooms
Taxonomy
Levels | Course
Outcomes |
|--|-----|------------------------------|--------------------|
| 1. Which of the following is not an OOPS concept in Java?
A) Polymorphism B) Inheritance C) Compilation D) Encapsulation. | [] | I | CO1 |
| 2. What is the extension of compiled java classes?
A) .txt B) .js C) .class D) .java. | [] | III | CO1 |
| 3. Which one of the following is not an access modifier?
A) Protected B) Void C) Public D) Private. | [] | IV | CO1 |
| 4. What is the return type of Constructors?
A) int B) float C) void D) None of the mentioned. | [] | II | CO1 |
| 5. Which of this keyword must be used to inherit a class?
A) super B) this C) extent D) extends. | [] | I | CO2 |
| 6. _____ of this access specifies can be used for a class so that its members can be accessed by a different class in the same package?
A) Public B) Protected C) No Modifier D) All of the mentioned. | [] | III | CO2 |
| 7. _____ of these can be used to fully abstract a class from its implementation?
A) Objects B) Packages C) Interfaces D) None of the Mentioned. | [] | IV | CO2 |
| 8. Which of these is not abstract?
A) Thread B) Abstract List C) List D) None of the Mentioned. | [] | II | CO2 |
| 9. _____ in the context of exception handling, what is a "checked exception"?
A) An exception that is checked at compile-time
B) An exception that is checked at runtime
C) An exception that is never checked
D) An exception that doesn't need to be caught. | [] | III | CO3 |
| 10. Which block in Java's exception handling is used to execute code regardless of whether an exception occurs or not?
A) try B) catch C) finally D) throw. | [] | IV | CO3 |

Answer All fill in the blank questions.**Marks: 6Qx1/2M = 3M**

- | | | |
|--|-----|-----|
| 11. URL stands for _____. | I | CO1 |
| 12. The output of the Java compiler is executed by the _____. | II | CO1 |
| 13. The term _____ refers to the fact that a variable can hold objects of different types. | IV | CO2 |
| 14. Every class is part of some _____. | I | CO2 |
| 15. A class _____ an interface, while a class _____ an abstract class. | III | CO2 |
| 16. The primary benefit of exception handling is to handle runtime errors _____. | II | CO3 |

Answer All Match the following questions.**Marks: 2Qx1M = 2M**

- | | | | | |
|-----|------------------|----|--------------------------------------|------------------|
| 17. | 1. Array | a) | Acquiring properties from base class | C
a
b
c |
| | 2. Inheritance | b) | More than one form | |
| | 3. Polymorphism | c) | Non-primitive data type | |
| | 4. Encapsulation | d) | Wrapping up of data | |

1.	Default method	a)	Extension method
2.	Static method	b)	It can't be overridden by sub class
3.	Final method	c)	A method that belongs to a class method.
4.	Super keyword	d)	Current object in a method
5.	This keyword	e)	It refers to super class objects.

Part - B

Marks: 4Qx5M = 20

Answer any **FOUR** questions.

9. Explain about Features of Java.
10. Explain about Constructors in Java and types of constructors with an example.
1. Define Array and types of arrays in Java.
2. Define Inheritance and its types with an example.
3. Differentiate between Method overriding and Abstract classes.
4. Explain the concept of Exception handling in Java. What are the main benefits of using exception handling in Java programming?

IV

CO2

II

II

I

I

V

II

CO

CO

CO

CO

C

C



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II B.Tech. II Semester (REGULAR) End Examinations, JULY - 2024.

(R22CSE2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

19/07/2024

(For AIML & IOT)

Day-5(FN)

Maximum Marks: 60M

Duration: 3 Hrs

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Appling, IV-Analyzing, V-Evaluating and VI-Creating)

Course Outcomes : CO

PART - A

(10Qx1M=10M)

Answer **ALL** the following questions.

1. a) Define Inheritance.
- b) List any two applications of Object oriented programming.
- c) Explain Control statements roll-in programming.
- d) Define Polymorphism.
- e) Explain about Abstract Class.
- f) Write about Event Listeners in Java.
- g) Differentiate between Component and Container.
- h) Differentiate between Grid layout and Border layout managers.
- i) What is JButton ?
- j) Explain about MVC architecture.

I	CO1
II	CO1
I	CO2
I	CO2
I	CO3
I	CO3
IV	CO4
I	CO4
IV	CO5
I	CO5

PART - B

(5Qx10M=50M)

Answer **FIVE** questions choosing at least one from each unit.

UNIT-I

- 2a. Explain the different parameter passing mechanisms used in Java.
- (OR)
- 2b. Distinguish between Overloading and Overwriting with an example.

I	CO1
IV	CO1

UNIT-II

- 3a. Explain different types of Inheritance with example programs.
- (OR)
- 3b. Define a Package? Explain how to create and access a Java package using a suitable program.

I	CO2
I	CO2

UNIT-III

- 4a. What is an Exception? How are exceptions handled in Java programming? Explain with suitable program.

I	CO3
---	-----

(OR)

- 4b. i) Differentiate between Multithreading and Multitasking.
- ii) Demonstrate the need of inter-thread communication with suitable example.

II	CO3
----	-----

UNIT-IV

- 5a. What is the role of event listeners in event handling? List the Java event listeners.

I	CO4
---	-----

(OR)

- 5b. Explain about different types of Layout managers in Java.

IV	CO4
----	-----

UNIT-V

- 6a. Design a user interface to collect data from the student for admission application using swing components.

VI	CO5
----	-----

(OR)

- 6b. Explain the lifecycle of an Applet with a neat diagram.

I	CO5
---	-----

BR-22

HT.No. D4
QC2608

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II B.Tech. I Semester (REG & SUPPL) End Examinations, JANUARY- 2025.

(R22CSE2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

10/01/2025

(For CSE, CS, AIDS & DS)

Day-5(FN)

Duration: 3 Hrs**Maximum Marks: 60M**

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Applying, IV-Analyzing, V-Evaluating and VI-Creating)

Course Outcomes : CO

PART - A

Answer ALL the following questions.

(10Qx1M=10M)

- | | | |
|---|----|-----|
| 1. a) How are data and methods organized in OOP? | II | CO1 |
| b) List all the primitive data types in java. | II | CO1 |
| c) What is CLASSPATH and how it is useful for JAVA. | IV | CO2 |
| d) Differentiate Overloading and Overriding. | IV | CO2 |
| e) Draw a chart about exception classes hierarchy in JAVA. | II | CO3 |
| f) Can a try block be written without a catch block? Justify. | V | CO3 |
| g) Write the AWT class hierarchy. | II | CO4 |
| h) Differentiate between checkbox and checkbox groups. | IV | CO4 |
| i) Write the various types of Applets. | II | CO5 |
| j) What are the limitations of AWT? | II | CO5 |

PART - B

Answer FIVE questions choosing at least one from each unit.

(5Qx10M=50M)

UNIT-I

- 2a. Write a Java program to overload a method named as area() which computes the area of a geometrical figure based on number of parameters and type. If number of parameters is 1 and is of type float it should calculate the area of circle, if it is of type int it should calculate area of square. If the number of parameters is 2 and they are of type float calculate area of triangle, if they are of int calculate area of rectangle.

(OR)

- 2b. I) What is an Array? How Arrays can be created in Java? Explain with an example. II) With a neat sketch illustrate about various Inheritances in Java.

UNIT-II

- 3a. I) Create and access a user defined package where the package contains a class named SquareDemo, which in turn contains a method called squareArea() which takes side of the square as the parameter and returns the area of the Square. II) Define an Interface. Write a program to demonstrate how interfaces can be extended.

(OR)

- 3b. I) Can we access public data of a class which belongs to different package? Justify with example program.

II) Write a class that prompts a student for the number of credit hours in which the student is enrolled, and the amount of money spent on books. Display, with full explanation, the student's total fees. The total is \$85 per credit hour, plus the amount

UNIT-III

III CO3

- 4a. I) Draw and explain Life cycle of a Thread.
II) Design Java Program to handle the following exceptions.
(i) Arithmetic Exception
(ii) Null Pointer Exception
(Note: Use single try with multiple catch blocks).
(OR)

- 4b. Design a Java program which creates 3 threads to print the messages in the following sequence. IV CO3
- The first thread displays "Welcome" message, for every 3 seconds.
 - The second thread displays "Hello" message, for every 2 seconds.
 - The third thread displays "Bye" message for every 5 seconds.

UNIT-IV

- 5a. I) Design a screen in Java which accepts text in text box. If the left mouse is clicked, convert the text to uppercase and if the right button is clicked, convert it to lower case. V CO4

II) Explain Flow layout manager with an example.
(OR)

- 5b. I) Explain the following AWT user components with their syntax and constructors. II CO4
- (i) Label
 - (ii) Button
 - (iii) Checkbox

II) Write a Java program to handle keyboard events, which echoes key strokes to the applet window and shows the status of each key event in the status bar.

UNIT-V

- 6a. I) Illustrate Applet life cycle with a neat diagram. VI CO5
- II) Differentiate between JApplet and JFrame.
(OR)

- 6b. I) Create an Applet to read user name and password from the user and display the given user id and password in two labels by clicking on button. III CO5
- II) Write a java program to show how the radio buttons can be used to change the background color of the applet window.



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II B.Tech. I Semester (REG & SUPPL) End Examinations, DEC 2025-JAN 2026.

(R22CSE2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

09/01/2026

(For CSE, CS, AIDS & DS)

Day-5(FN)

Duration: 3 Hrs

Maximum Marks: 60M

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Applying, IV-Analyzing, V-Evaluating and VI-Creating)

Course Outcomes : CO

PART - A

Answer ALL the following questions.

(10Qx1M=10M)

- | | | |
|---|----|-----|
| 1. a) Define Variable. How to declare it? | I | CO1 |
| b) What is method Overloading? | I | CO1 |
| c) Differentiate between this() and super(). | II | CO2 |
| d) Discuss any two differences between Class and Interface. | I | CO2 |
| e) What is Exception and Error? | I | CO3 |
| f) What is Daemon thread? | II | CO3 |
| g) Write about Event Source and Event Listener. | I | CO4 |
| h) Write a short note on checkbox group. | I | CO4 |
| i) What is an Applet? | I | CO5 |
| j) Compare Frame and Window. | I | CO5 |

PART - B

Answer FIVE questions choosing at least one from each unit.

(5Qx10M=50M)

UNIT-I

- | | | |
|---|----|-----|
| 2a. Summarize the Buzzwords of Java. | IV | CO1 |
| (OR) | | |
| 2b. i) Define Type conversion. Discuss various type castings in java. | II | CO1 |
| ii) Explain parameter passing techniques in java with examples. | | |

UNIT-II

- | | | |
|--|-----|-----|
| 3a. Elaborate the following keywords with example.
i) this ii) final iii) super | III | CO2 |
| (OR) | | |
| 3b. Define Package. List the required steps for creating a package and give example to create a package. | V | CO2 |

UNIT-III

- | | | |
|--|----|-----|
| 4a. i) Distinguish between throws and throw keywords. | IV | CO3 |
| ii) Describe the concept of thread synchronization. | | |
| (OR) | | |
| 4b. State and explain exception handling mechanism with example. | I | CO3 |

UNIT-IV

- | | | |
|--|-----|-----|
| 5a. Analyze the concept to handle Mouse Events with example. | II | CO4 |
| (OR) | | |
| 5b. Analyze various types of layout managers used in JAVA. | III | CO4 |

UNIT-V

- | | | |
|--|-----|-----|
| 6a. Develop source code for creating an applet for getting the personal details of a person. | II | CO5 |
| (OR) | | |
| 6b. i) Differentiate AWT Components and Swing Components. | III | CO5 |
| ii) Demonstrate JTable with example. | | |



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II B.Tech. II Semester (SUPPL) End Examinations, DEC 2025-JAN2 026.

(R22CSE2115) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

10/01/2026

(For AIML & IoT)

Day-5(AN)

Duration: 3 Hrs

Maximum Marks: 60M

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Applying, IV-Analyzing, V-Evaluating and VI-Creating)

Course Outcomes : CO

PART - A

Answer ALL the following questions.

(10Qx1M=10M)

- | | | |
|---|----|-----|
| 1. a) List out Java Buzzwords. | I | CO1 |
| b) Write about Inner Classes. | I | CO1 |
| c) Enumerate the uses of super keyword. | II | CO2 |
| d) Write two differences between classes and interfaces. | II | CO2 |
| e) What is the significance of Throwable class? | II | CO3 |
| f) What is a Daemon Thread? | I | CO3 |
| g) Differentiate between Events and Event Listeners. | II | CO4 |
| h) Write the difference between check box and check box groups. | II | CO4 |
| i) Enumerate types of applets. | I | CO5 |
| j) Differentiate between Components and Containers. | II | CO5 |

PART - B

Answer FIVE questions choosing at least one from each unit.

(5Qx10M=50M)

UNIT-I

- | | | |
|---|-----|-----|
| 2a/ Describe the relationship between classes and objects with the help of real-world examples. | II | CO1 |
| (OR) | | |
| 2b. Write a program to define the class called Rectangle with overloaded constructors to initialize the Rectangle object with default value for length and breadth in case of the corresponding parameter is not provided. Also provide the function to compute the area and perimeter of the rectangle object. | III | CO1 |

UNIT-II

- | | | |
|--|---|-----|
| 3a. Demonstrate accessing implementations through interface references with an example code. | I | CO2 |
|--|---|-----|

(OR)

- | | | |
|------------------------------------|---|-----|
| 3b/ Enumerate member access rules. | I | CO2 |
|------------------------------------|---|-----|

UNIT-III

- | | | |
|--|-----|-----|
| 4a. Write about Inter-thread communication. | II | CO3 |
| (OR) | | |
| 4b/ Differentiate between built-in exceptions and user-defined exceptions. | III | CO3 |

UNIT-IV

- | | | |
|---|----|-----|
| 5a. Enumerate any six Events and their corresponding Event Listener Interfaces. | I | CO4 |
| (OR) | | |
| 5b. Write a program to demonstrate the handling of keyboard events. | II | CO4 |

UNIT-V

- | | | |
|---|----|-----|
| 6a. Write a program to demonstrate a Swing application by using the components, JButton and JTextField, labels. | II | CO5 |
|---|----|-----|

(OR)

- | | | |
|---|----|-----|
| 6b/ Describe the life-cycle of an Applet. | IV | CO5 |
|---|----|-----|



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II B.Tech. II Semester (SUPPL) End Examinations, DEC 2025-JAN 2026.

(R22CSI2215) JAVA PROGRAMMING

(For IT & CSIT)

Day-5(AN)

10/01/2026

Duration: 3 Hrs

Maximum Marks: 60M

Blooms Taxonomy : (I-Remembering, II-Understanding, III-Applying, IV-Analyzing, V-Evaluating and VI-Creating)

Course Outcomes : CO

PART - A

(10Qx1M=10M)

Answer ALL the following questions.

- | | | |
|--|-----|-----|
| 1. a) What is the role of the keyword in Java? | I | CO1 |
| b) Define encapsulation with an example. | I | CO1 |
| c) What is the difference between throw and throws? | I | CO2 |
| d) Define checked and unchecked exceptions. | I | CO2 |
| e) What is the significance of the CLASSPATH environment variable? | II | CO3 |
| f) Differentiate between Comparable and Comparator interfaces. | I | CO3 |
| g) Define a thread in Java. | I | CO4 |
| h) List any two JDBC drivers. | I | CO4 |
| i) Define the Delegation Event Model. | I | CO5 |
| j) What is the purpose of a Layout Manager in Swing? | III | CO5 |

PART - B

(5Qx10M=50M)

Answer FIVE questions choosing at least one from each unit.

UNIT-I

- | | | |
|--|-----|-----|
| 2a. Explain the concept of inheritance in Java with an example program. | II | CO1 |
| (OR) | | |
| 2b. Illustrate polymorphism in Java with a program for constructor overriding. | III | CO1 |

UNIT-II

- | | | |
|--|-----|-----|
| 3a. Write a Java program to create a custom exception and handle it. | II | CO2 |
| (OR) | | |
| 3b. Write a program to read and write data to a file using byte streams. | III | CO2 |

UNIT-III

- | | | |
|---|-----|-----|
| 4a. Explain the process of creating and importing user-defined packages in Java. | IV | CO3 |
| (OR) | | |
| 4b. Write a Java program to sort a list of student names using Comparable and Comparator. | III | CO3 |

UNIT-IV

- | | | |
|--|-----|-----|
| 5a. Write a Java program to create two threads and demonstrate thread synchronization. | II | CO4 |
| (OR) | | |
| 5b. Write a JDBC program to connect to a database and retrieve employee details. | III | CO4 |

UNIT-V

- | | | |
|--|----|-----|
| 6a. Write a Swing program to create a simple calculator using buttons and text fields. | IV | CO5 |
| (OR) | | |
| 6b. Write a Java program to handle mouse and keyboard events. | IV | CO5 |
