Subject	UT-1	Half-Yearly Exam		UT-2	Annual Exam	
			Project			Project
Computer Applications (Loxix 2.0)	**Chapter-1: Introduction to Object Oriented Programming concepts** (i) Principles of Object Oriented Programming, All the four principles of Object Oriented Programming should be defined and explained using real life examples (Data abstraction, Inheritance, Polymorphism, Encapsulation). (ii) Introduction to JAVA - Types of java programs, Java Compilation process, Java Source code, Byte code, Object code, (JVM), Features of JAVA, steps involved in compilation process, definitions of source code, byte code, object code, JVM, features of JAVA.	**Chapter-1: Introduction to Object Oriented Programming concepts** (i) Principles of Object Oriented Programming, All the four principles of Object Oriented Programming should be defined and explained using real life examples (Data abstraction, Inheritance, Polymorphism, Encapsulation). (ii) Introduction to JAVA - Types of java programs, Java Compilation process, Java Source code, Byte code, Object code, (JVM), Features of JAVA, steps involved in compilation process, definitions of source code, byte code, object code, JVM, features of JAVA.	Write any 10 Program in JAVA which are based on the half-yearly syllabus	**Chapter-6: Mathematical Library** Methods Introduction to package java.lang [default], methods of Math class. pow(x,y), sqrt(x), cbrt(x), ceil(x), floor(x), round (x), abs(a), max(a, b), min(a,b), random( ). Java expressions – using all the operators and methods of Math class.	**Chapter-3: Values and data types** Character set, ASCII code, Unicode, Escape sequences, Tokens, Constants and Variables, Data types, type conversions. Escape sequences [\n, \t, \\, \", \'], Tokens and its types [keywords, identifiers, literals, punctuators, operators], primitive types and non-primitive types with examples, Introduce the primitive types with size in bits and bytes, Implicit type conversion and Explicit type conversion.	Write any 10 programs in JAVA which are based on the annual syllabus

	Chapter-2: Elementary Concept of Objects and Classes Modelling entities and their behaviour by objects, a class as a specification for objects and as an object factory, computation as message passing/method calls between objects (many examples should be done to illustrate this). Objects encapsulate state (attributes) and have behaviour (methods). Class as a user defined data type. A class may be regarded as a blueprint to create objects. It may be viewed as a factory that produces similar objects.	**Chapter-2: Elementary Concept of Objects and Classes** Modelling entities and their behaviour by objects, a class as a specification for objects and as an object factory, computation as message passing/method calls between objects (many examples should be done to illustrate this). Objects encapsulate state (attributes) and have behaviour (methods). Class as a user defined data type. A class may be regarded as a blueprint to create objects. It may be viewed as a factory that produces similar objects.		**Chapter-7: Conditional constructs in Java** Application of if, if else, if else if ladder, switch-case, default, break. if, if else, if else if, Nested if, switch case, break statement, fall through condition in switch case, Menu driven programs, System.exit(0) - to terminate the program.	**Chapter-4: Operators in Java** Forms of operators, Types of operators, Counters, Accumulators, Hierarchy of operators, 'new' operator, dot (.) operator. Forms of operators (Unary, Binary, Ternary), types of operators (Arithmetic, Relational, Logical, Assignment, Increment, Decrement, Short hand operators), Discuss precedence and associativity of operators, prefix and postfix, Creation of dynamic memory by using new operator, invoking members of class using dot operator, Introduce System.out.println() and System.out.print() for simple output. (Bitwise and shift operators are not included).	
		Chapter-3: Values and data types Character set, ASCII code, Unicode, Escape sequences, Tokens, Constants and Variables, Data types, type conversions. Escape sequences [\n, \t, \\, \", \'], Tokens and its types [keywords, identifiers, literals, punctuators, operators], primitive types and non-primitive types with examples, Introduce the primitive types with size in bits and bytes, Implicit type conversion and Explicit type conversion.			**Chapter-5: Input in Java** Initialization, Parameter, introduction to packages, Input streams (Scanner Class), types of errors, types of comments Initialization – Data before execution, Parameters – at the time of execution, input stream – data entry during execution – using methods of Scanner class [nextShort(), nextInt( ), nextLong( ), nextFloat ( ), nextDouble( ), next( ), nextLine( ), next ( ).charAt(0)] Discuss different types of errors occurring during execution and compilation of the program (syntax errors, runtime errors and logical errors). Single line comment (//) and multiline comment (/* … */)	

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					Chapter-8. Iterative constructs in Java Definition, Types of looping statements, entry controlled loops [for, while], exit controlled loop [do while] , variations in looping statements, and Jump statements. Syntax of entry and exit controlled loops, break and continue, Simple programs illustrating all three loops, inter conversion from for – while – do while finite and infinite, delay, multiple counter variables (initializations and updations). Demonstrate break and continue statements with the help of loops. Loops are fundamental to computation and their need should be shown by examples.	

					Chapter-9. Nested for loops Introduce nested loops through some simple examples. Demonstrate break and continue statements with the help of nested loops. Programs based on nested loops [rectangular, triangular [right angled triangle only] patterns], series involving single variable. (Nested while and nested do while are not included.) **Chapter- 10. Computing and Ethics** Ethical Issues in Computing. Intellectual property rights; protection of individual's right to privacy; data protection on the internet; protection against Spam; software piracy, cybercrime, hacking, protection against malicious intent and malicious code. The stress should be on good etiquette and ethical practices.	