Computer Applications
Syllabus for Class X(2024 – 2025)

APRIL-MAY	**1. Revision of Topics taught in class IX** (i) Introduction to Object Oriented Programming concepts, (ii) Elementary Concept of Objects and Classes, (iii) Values and Data types, (iv) Operators in Java, (v) Input in Java, (vi) Mathematical Library Methods, (vii) Conditional constructs in Java, (viii) Iterative constructs in Java, (ix) Nested for loops.
MAY-JUNE	**2.Functions** Need of functions. Types of functions (pure and impure). Function declaration and definition, ways of calling functions (call by value and call by reference)Returning information/messages from the functions and use of multiple functions and more than one function with the same name (function overloading).. **3. Constructors** Constructor and its types.Default constructor, parameterized constructor, constructor with default parameter and constructor overloading
JULY-AUGUST	**4. Using Library Classes** Simple input/output. String, packages and import statements.libraries and illustrating their use. The following functions have to be covered :String library functions: Char charAt (unt i),int compareTo(String1, String2)String concat(String str) boolean endsWith(String str)boolean equals(String str)boolean equalsIgnoreCase(String str)int indexOf(char ch)int lastIndexOf(char ch)int length( )String replace (char oldChar,char newChar)boolean startsWith(String str)String substring(int beginIndex, int endIndex)String toLowerCase( )String toUpperCase( )String trim( )String valueOf(all types), toString()Mathematical Library Functions:pow(x,y), log(x), sqrt(x), ceil(x), floor(x), rint(x),abs(a), max(a, b), min(a,b), random( ), sin(x), cos(x),tan(x), asin(), acos(), atan().
SEPTEMBER	**5. Class as a User Defined Type** Class as a composite type, distinction between primitive type and composite or class types. Class may be considered as a new data type created by the user, that has its own functionality. (The distinction between primitive and composite types should be discussed through examples. Show how classes allow user defined types in programs. All primitive types have corresponding class wrappers. The following methods are to be covered: int parseInt(String s), int valueOf(String s),long parseLong(String s), long valueOf(String s),float parseFloat(String s), float valueOf(String s),double parseDouble(String s), double valueOf(String s), boolean isDigit(char ch),boolean isLetter(char ch),oolean isLetterOrDigit(char ch),boolean isLowerCase(char ch),boolean isUpperCase(char ch),boolean isWhitespace(char ch),char to LowerCase (char ch) to UpperCase(char ch)
OCTOBER	**6. Class as the Basis of all Computation** Objects and ClassesObjects encapsulate state and behaviour œ numerous examples; member variables; attributes or features.Variables define state; member functions; Operations/methods/ messages/ functions define behaviour.Classes as abstractions for sets of objects; class as anobject factory; concept of type, primitive data types,composite data types. Variable declarations for both types; difference between the two types. Objects as instances of a class.
NOVEMBER	**7.Arrays** Arrays storing, retrieving and arranging data, Arrays and their uses, sorting algorithms - selection sort and bubble sort; Search algorithms œ linear search and binary search Example of a composite type. Array creation. Sorting and searching algorithms should be discussed
	8. Encapsulation Access specifiers and scope and visibility Access specifiers œ private and public. Visibility rules for private, package and public access specifiers. Scope of variables, instance variables, argument variables, local variables.
DECEMBER onwards..	**Revision** **Model Test papers**