Syllabus of Computer Science 2020-21
Class XI (Science & Commerce)

TOPICS
Numbers Representation of numbers in different bases and interconversion between them (e.g., binary, octal, decimal, hexadecimal). Addition and subtractionoperations for numbers in different bases. Binary encodings for integers and realnumbers using a finite number of bits (sign magnitude, twos complement, mantissa exponent notation). Basic operations on integers and floating-point numbers. Limitations of finite representations.
Propositional logic, hardware implementation, arithmetic operations (a) Propositional logic, well-formed formulae, truth values and interpretation of well-formed formulae, truth tables. (b) Logic and hardware, basic gates (AND, NOT, OR) and their universality, other gates (NAND, NOR, XOR); inverter, half adder, full adder. **Primitive values, wrapper classes, types and Casting** Primitive values and types: int, short, long, float, double, boolean, char. Corresponding wrapperclasses for each primitive type. Class as type ofthe object. Class as mechanism for user definedtypes. Changing types through user definedcasting **Variables, expressions** Variables as names for values; expressions(arithmetic and logical) and their evaluation (operators, associativity, precedence). Assignmentoperation; difference between left hand side andright hand side of assignment.
Use of Decision making statements jumping and branching, various forms of if..else, if..else.,switch..case **Loops**: Use of for loop, while loop Use of do..while in making java program both known and unknown iterations. Program based on series, Pattern, number system, general questions.
Functions : Use of functions, types, parts, function parameters, passing parameters by values.(programming and theoretical examples)
Using Library Classes Simple input/output. String, packages and import statements. libraries and illustrating their use. String library functions: Char charAt (unti),intcompareTo(String1, String2)String concat(String str) booleanendsWith(String str)boolean equals(String str)booleanequalsIgnoreCase(String str)intindexOf(char ch)intlastIndexOf(char ch)int length( )String replace (char oldChar,charnewChar)booleanstartsWith(String str)String substring(intbeginIndex, intendIndex)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().
Ethical Issues in computing: intellectual property ights, protection of individual rights to privacy, data protection on the internet, protection against spam, software piracy, cyber crime, hacking, protection against malicious intent and malicious code.