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| **S.NO** | **TOPICS COVERED** |
| 1 | Introduction of students  What is ITEP ?  How things work. |
| 2 | How to prepare a Documentation |
| 3 | How to prepare a Presentation What is language ?  Flow Cycle of Input to Output What is programming Language ? -Types of Programming Language I.Low Level Programming Language a.Binary Language b.Assembly Language II.Middle Level Programming Language III.High Level programming Language Difference between Compiler and Interpreter |
| 4 | What is Algorithm What is Flowchart Examples based on algorithm and flowchart What is tokens I.Constant II.Variables III.Keywords IV.Identifiers V.Separators Operators (continued in next class) |
| 5 | Operators(continued)  Procedure Oriented Programming Language  Characteristics of Procedure Oriented Programming Language  Structure of C Program  Format Specifier | Escape Sequence character  Basic Examples on Sequential Programming + How to take values from User |
| 6 | Java Programming language (23/01/2023)  Object Oriented Programming Language  Characteristics of Object Oriented Programming language  What is Java ?  Types of application  Features (How platform independent)  Versions |
| 7 | Datatype in java History of java Flow of Java Program JDK,JRE,JVM JVM Architecture Structure of Java Program Scanner class Formula based programming examples Examples based on mathematical concepts |
| 8 | Control Statements. Types of control statement i. Sequential control statement ii. Conditional control statement iii. Switch control statement iv. looping control statement |
| 9 | Examples on loops | Nested Loops | Patterns | break | continue | exit |
| 10 | Introduction to Array | Types of Array |
| 11 | Programs on one dimensional array | Searching | Sorting Programs |
| 12 | Programs on Two dimensional | Jagged Array | Multidimensional array |
| 13 | OOP's Concept |
| 14 | UserDefined Class and Object + Examples |
| 15 | Functions (Functions Examples + Array Programs) |
| 16 | this keyword (Programs with different cases of this keyword) |
| 17 | Command line argument |
| 18 | getter and setter methods (why to use) |
| 19 | Pojo vs Bean class | Dependency Injection (Setter injection & constructor injection) |
| 20 | Constructor + Constructor Chaining |
| 21 | Types of Constructor (Default , Parameterized and Copy Constructor) |
| 22 | Shallow Copy and Deep Copy in Copy Constructor |
| 23 | Call by value(java) and Call by Reference(c/c++) |
| 24 | Reference Array vs Array of object |
| 25 | Varargs + final keyword + static keyword(block | variable | method) |
| 26 | Introduction of design pattern |
| 27 | Singleton class(Lazy | Eager | Static block) | Initializer block | garbage collector |
| 28 | Method & Constructor Overloading | Compile time polymorphism + Super Keyword |
| 29 | Inheritance and Types of Inheritance |
| 30 | Association Aggregation Composition |
| 31 | Method Overriding | Runtime Polymorphism (Upcasting & Downcasting) |
| 32 | instanceof operator |
| 33 | Abstraction (Abstract class) |
| 34 | Nested class in java | static nested class | Inner class(Non-static Nested class) |
| 35 | Interface | Functional interface | static default private methods in java 8,9 |
| 36 | Functional programming | lambda expression | method reference | predicate |
| 37 | Object class | methods of object class | Cloning(deep and shallow) |
| 38 | Package | Built-In and Userdefined Package |
| 39 | String (Immutable String) | StringBuffer, StringBuilder (Mutable String) |
| 40 | String Tokenizer , StringJoiner, String class methods + Programs |
| 41 | Exception Handling | PreDefined and UserDefined exceptions |
| 42 | try | catch | finally | throw | throws |
| 43 | Difference between throw and throws |
| 44 | Difference between final finally and finalize |
| 45 | File Handling (ByteStream and CharStream) |
| 46 | Multithreading (Introduction to Thread & Process based multitasking) |
| 47 | Life cycle of thread | Ways to create Thread Object |
| 48 | Methods of thread object | sleep | wait | notify | notifyAll | ThreadGroup |
| 49 | Thread Synchronization (Object and class level locking) |
| 50 | InterThread communication | Deadlock in thread |
| 51 | JDBC | Types of drivers | Steps to connect java application with database through jdbc |
| 52 | DatabaseMetaData | ResutSetMetaData | Examples through programs |
| 53 | Executes queries on command prompt | joins | primary + foreign key creation etc |
| 54 | Swing Introduction | Examples | Swing with databases | Fetch data from database in Table |
| 55 | Swing vs AWT |
| 56 | Wrapper class (Auto boxing & unboxing)| Utility Methods | Generic class and Generic Method |
| 57 | Collection Framework | Comparable | Comparator | Map | Cursor |
| 58 | Ajax Example fetch city on the basis of state |
| 59 | Data Structure (Array , Searching, Sorting, Stack, Queue) |