**Chapter 1: OOPS and CORE JAVA**

* What is JVM (Java Virtual Machine)?
* What is JIT (Just-in-Time) Compilation?
* What is Object Oriented Programming?
* What’s a Class?
* What’s an Object?
* What’s the relation between Classes and Objects?
* What are different properties provided by Object-oriented systems?
* How do you implement inheritance in Java?
* How can we implement polymorphism in Java?
* What is an Abstract class?
* What are Abstract methods?
* What’s the difference between “Abstract” classes and “Interfaces”?
* What’s difference between Static and Non-Static fields of a class?
* What are inner classes and what’s the practical implementation of inner classes?
* What are packages?
* What is a constructor in class?
* Can constructors be parameterized?
* What is the use if “instance of” keyword?
* What are Native methods in Java?
* How do refer to a current instance of object?
* Explain in depth Garbage collector?
* How does the garbage collector determine that the object has to be marked for deletion?
* Can you explain “finalize()” method?
* How can we force the garbage collector to run?
* What’s the main difference between “Switch” and “If” comparison?
* What’s the use of JAVAP tool?
* What are applets?
* In which package is, the applet class located?
* What are native interfaces in Java?
* What are Class loaders?
* What is Bootstrap, Extension and System Class loader?
* Can you explain the flow between bootstrap, extension and system class loader?
* Can you explain how can you practically do dynamic loading?
* What is Reflection API in Java?
* What’s the difference between static and dynamic class loading?
* How can you copy one array in to a different array?
* Can you explain the core collection interfaces?
* Can you explain in brief the collection classes which implement the collection interfaces?
* What’s the difference between standard JAVA array and Array List class?
* What’s the use of “ensure Capacity” in Array List class?
* How can we obtain an array from an Array List class?
* What is “Linked List” class for?
* Can you explain Hash Set class in collections?
* What is LinkedHashSet class?
* What is a TreeSet class?
* What’s the use of Comparator Interface?
* How can we access elements of a collection?
* What is Map and SortedMap Interface?
* Have you used any collection algorithm?
* Why do we use collections when we had traditional ways for collection?
* Can you name the legacy classes and interface for collections?
* What is Enumeration Interface?
* What’s the main difference between Array List / Hash Map and Vector / Hash table?
* Are String object Immutable, Can you explain the concept?
* What is a String Buffer class and how does it differs from String class?
* What is the difference between String Builder and String Buffer class?
* What is Pass by Value and Pass by reference? How does JAVA handle the same?
* What are access modifiers?
* What is Assertion?
* Can you explain the fundamentals of deep and shallow Cloning?
* How do we implement shallow cloning?
* How do we implement deep cloning?
* What’s the impact of private constructor?
* What are the situations you will need a constructor to be private?
* Can you explain final modifier?
* What are static Initializes?
* If we have multiple static initialize blocks how are the sequence handled?
* Define casting? What are the different types of Casting?
* Can you explain Widening conversion and Narrowing conversion?
* Can we assign parent object to child objects?
* Define exceptions?
* Can you explain in short how JAVA exception handling works?
* Can you explain different exception types?
* Can you explain checked and unchecked exceptions?
* Can we create our own exception class?
* What are chained exceptions?
* What is serialization?
* How do we implement serialization actually?
* What’s the use of Externalizable Interface?
* What is JAVA doc utility?

**Chapter 2: Threading**

* What’s difference between thread and process?
* What is thread safety and synchronization?
* What is semaphore?
* What are monitors?
* What’s the importance of synchronized blocks?
* How do we create threads?
* What’s the difference in using runable and extends in threads?
* Can you explain Thread. Sleep?
* How to stop a thread?
* What is wait () and notify ()?
* Can you explain how Scheduling and Priority works in threads?
* Can you explain Yielding in threading?
* What are daemon threads?
* How do we implement single threaded model in servlets?

**Chapter 3: JDBC**

* How does JAVA interact with databases?
* Can we interact with non-relational sources using JDBC?
* Can you explain in depth the different sections in JDBC?
* Can you explain in short how you go about using JDBC API in code?
* How do you handle SQL exceptions?
* Twist: - (A) Can you explain “SQLException” class in detail?
* Twist: - (A) what is SQL State in SQL Exceptions?
* If there is more than one exception in SQL Exception” class how to go about displaying it?
* Explain Type1, Type2, Type3, and Type4 drivers in JDBC?
* What are the advantages and disadvantages of using JDBC-ODBC bridge driver?
* What are the advantages and disadvantages of using Native-API/ Partially Java Driver?
* What are the advantages and disadvantages of using Net-Protocol/ All-Java driver?
* What are the advantages and disadvantages of using Native-protocol/ All-Java driver?
* Advantages of using JDBC-ODBC bridge driver:-
* Disadvantages of using JDBC-ODBC bridge driver:-
* Advantages of using Native-API/ Partially Java Driver:-
* Dis-advantages of using Native-API/ Partially Java Driver:-
* Advantages of using Net-Protocol/ All-Java driver:-
* Disadvantages of using Net-Protocol/ All-Java driver:-
* Advantages of using Native-protocol/ All-Java driver:-
* Disadvantages of using Native-protocol/ All-Java driver:-
* Define meta-data?
* What is Database Metadata?
* Can you explain “Connection Factory” class?
* I want to display tables of a database how do I do it?
* Define “Result Set Meta Data”?
* What is the difference between “Result Set” and “Row Set”?
* Can “Result Set” objects be serialized?
* Explain “Result Set”, “Row Set”, “Cached Row set”, “JdbcRowset” and “Web Row Set”?
* What are the different types of resultset?
* Explain the concept of “Prepared Statement “statement interface?
* What’s the difference between “Statement” and “Prepared Statement”?
* How can we call stored procedure using JDBC?
* Can you explain “Callable Statement” interface in detail?
* How do you get a result set object from stored procedure?
* How can we do batch updates using “Callable Statement” Interface?
* Define transactions?
* What is ACID in transaction?
* What are the four essential properties of a transaction?
* Explain concurrency and locking?
* What are different types of locks?
* What are the different types of levels of resource on which locks can be placed?
* Define lock escalation?
* What is Table level and Row level locking?
* What are the problems that can occur if you do not implement locking properly?
* What are different transaction levels?
* Twist: - what are different types of locks?
* What is difference between optimistic and pessimistic locking?
* What are deadlocks?
* How can we set transaction level through JDBC API?
* Can you explain transaction control in JDBC?
* What are Save points in a transaction?

**Chapter 4: Servlets and JSP**

* What are Servlets?
* What are advantages of servlets over CGI?
* Can you explain Servlet life cycle?
* What are the two important API’s in for Servlets?
* Can you explain in detail “javax.servlet” package?
* What’s the use of ServletContext?
* How do we define an application level scope for servlet?
* What's the difference between Generic Servlet and Http Servlet?
* Can you explain in detail javax.servlet.http package?
* What’s the architecture of a Servlet package?
* Why is HTTP protocol called as a stateless protocol?
* What are the different ways we can maintain state between requests?
* What is URL rewriting?
* What are cookies?
* What are sessions in Servlets?
* What the difference is between get Session (true) and get Session (false)?
* What’s the difference between “doPost” and “doget” methods?
* Which are the different ways you can communicate between servlets?
* What is functionality of “Request Dispatcher” object?
* How do we share data using “getServletContext ()”?
* Explain the concept of SSI?
* What are filters in JAVA?
* Can you explain in short how do you go about implementing filters using Apache Tomcat?
* Twist: - Explain step by step of how to implement filters?
* What’s the difference between Authentication and authorization?
* Explain in brief the directory structure of a web application?
* Can you explain JSP page life cycle?
* What is EL?
* How does EL search for an attribute?
* What are the implicit EL objects in JSP?
* How can we disable EL?
* What is JSTL?
* Can you explain in short what the different types of JSTL tags are?
* How can we use beans in JSP?
* What is the use of <jsp: include>?
* What is <jsp: forward> tag for?
* What are JSP directives?
* What are Page directives?
* What are including directives?
* Can you explain taglib directives?
* How does JSP engines instantiate tag handler classes’ instances?
* What’s the difference between JavaBeans and taglib directives?
* What are the different scopes an object can have in a JSP page?
* What are different implicit objects of JSP?
* What are different Authentication Options available in servlets?
* Can you explain how do we practically implement security on a resource?
* How do we practically implement form based authentication?
* How do we authenticate using JDBC?
* Can you explain JDBCRealm?
* Can you explain how do you configure JNDIRealm?
* How did you implement caching in JSP?
* What is the difference between Servletcontext and ServletConfig?
* How do we prevent browser from caching output of my JSP pages?
* Can we explicitly destroy a servlet object?
* Chapter 6: Struts
* (I)What’s MVC pattern?
* Define struts?
  + Can you explain the directory structure for a struts folder in brief?
* Can you give an overview of how a struts application flows?
* Twist: - What are action and action form classes in Struts?

**Chapter 7: XML and Web Services**

* What is XML?
* What is the version information in XML?
* What is ROOT element in XML?
* If XML does not have closing tag will it work?
* Is XML case sensitive?
* What is the difference between XML and HTML?
* Is XML meant to replace HTML?
* Can you explain why your project needed XML?
* What is DTD (Document Type definition)?
* What is well formed XML?
* What is a valid XML?
* What is CDATA section in XML?
* What is CSS?
* What is XSL?
* What is element and attributes in XML?
* What are the standard ways of parsing XML document?
* In What scenarios will you use a DOM parser and SAX parser?
* What is XSLT?
* Define XPATH?
* What is the concept of XPOINTER?
* What is a Web Service?
* What is DISCO?
* What is SOAP?
* What is WSDL?
* Can you explain UDDI?
* Can you explain JAXP?
* What is a XML registry?
* What is JAXR?
* What is JAXM?
* Can you explain JAX-RPC?
* How do you practically implement Web Services?
* How do we consume a web service?
* Are web services Stateful?

**Chapter 8: Internationalization**

* Can you explain i18n and l10n?
* Can you explain internationalization and localization?
* What is Locale?
* How do we display numbers, currency and Dates according to proper Locale format?
* What are resource bundles?
* How do we load a resource bundle file?
* How can we do inheritance in resource bundles?

**Chapter 9: JNI**

* What is Native Interface in JAVA?
* Can you say in brief steps required to implement Native interfaces in Java?
* Can JNI be used for VB6, C# or VB.NET directly?
* What are JNI functions and pointers?
* How does the garbage collector know JNI objects are no more used?
* Twist: - What are the different types of references JNI supports?
* Twist: - How to do you delete global objects?
* How does the native language C or C++ understand data types in JAVA?
* Can you explain exception handling in JNI?
* What are limitations for “JNIEnv” pointer in multi-threading scenarios?
* What are the advantages and disadvantages of using “JNI”?

**Chapter 10: Architecture**

* What are design patterns?
* Can you list down all patterns and their classification?
* What is the difference between Factory and Abstract Factory Patterns?
* What is MVC pattern?
* How can we implement singleton pattern in JAVA?
* How do you implement prototype pattern in JAVA?
* Can you give a practical implementation of FAÇADE patterns?
* How can we implement observer pattern in JAVA?
* What is three tier architecture?
* What is Service Oriented architecture?
* What is aspect oriented programming?
* How can you implement AOP practically in JAVA?
* What is Inversion of control?
* What is OR mapping?

**Chapter 11: UML**

* What is UML?
* How many types of diagrams are there in UML?
* What are advantages of using UML?
* What is the sequence of UML diagrams in project?
* Give a small brief explanation of all Elements in activity diagrams?
* Explain Different elements of a collaboration diagram?
* Explain Component diagrams?
* Describe the various components in sequence diagrams?
* What are the elements in State Chart diagrams?
* Describe different elements in Static Chart diagrams?
* Explain the different elements of a Use Case?

**Chapter 12: Project Management**

* What is project management?
* Is spending in IT projects constant through out the project?
* Who is a stakeholder?
* Can you explain project life cycle?
* Are risk constant through out the project?
* Can you explain different software development life cycles?
* What is triple constraint triangle in project management?
* What is a project baseline?
* What is effort variance?
* How is normally a project management plan document organized?
* (I)How do you estimate a project?
* What is CAR (Causal Analysis and Resolution)?
* What is DAR (Decision Analysis and Resolution)?
* What is a fish bone diagram?
* What is pare to principle?
* How do you handle change request?
* What is internal change request?
* What is difference between SITP and UTP in testing?
* What is the software you have used for project management?
* What are the metrics followed in project management?
* You have people in your team who do not meet there deadlines or do not perform what are the actions you will take?
* What is black box testing and White box testing?
* What’s the difference between Unit testing, Assembly testing and Regression testing?
* What is V model in testing?
* How do you start a project?
* How did you do resource allocations?
* How will you do code reviews?
* What is CMMI?
* What are the five levels in CMMI?
* What is continuous and staged representation?
* Can you explain the process areas?
* What is SIX sigma?
* What is DMAIC and DMADV?
* What are the various roles in Six Sigma implementation?
* What are function points?
* What are the different types of elementary process in FPA?
* What are the different elements in Functions points?
* Can you explain in GSC and VAF in function points?
* What are unadjusted function points and how is it calculated?
* Can you explain steps in function points?
* What is the FP per day in your current company?
* Do you know Use Case points?
* What is COCOMO I, COCOMOII and COCOMOIII?
* What is SMC approach of estimation?
* How do you estimate maintenance project and change requests?

**Chapter 13: Database**

* What is database or database management systems (DBMS)?
* What is SQL?
* What’s difference between DBMS and RDBMS?
* What are CODD rules?
* What are E-R diagrams?
* How many types of relationship exist in database designing? What is normalization? What are different type of normalization?
* What is denormalization?
* Can you explain Fourth Normal Form?
* Can you explain Fifth Normal Form?
* What’s the difference between Fourth and Fifth normal form?
* Have you heard about sixth normal form?
* What are DML and DDL statements?
* How do we select distinct values from a table?
* What is like operator for and what are wild cards?
* Can you explain Insert, Update and Delete query?
* What is order by clause?
* What is the SQL In clause?
* Can you explain the between clause?
* I have an employee salary table how do we find the second highest from it?
* What are different types of joins in SQL?
* What is “CROSS JOIN”?
* You want to select the first record in a given set of rows?
* What is the default “SORT” order for a SQL?
* What is a self-join?
* What’s the difference between DELETE and TRUNCATE?
* What are Wildcard operators?
* Twist: - What is like clause in SQL?
* What’s the difference between “UNION” and “UNION ALL”?
* What are cursors and what are the situations you will use them?
* What are the steps to create a cursor?
* What is “Group by” clause?
* What is the difference between “HAVING” and “WHERE” clause?
* What is a Sub-Query?
* What are Aggregate and Scalar Functions?
* Can you explain the SELECT INTO Statement?
* What is a View?
* What is “Correlated Sub queries”?
* What is SQl injection?
* What is “Data Warehousing”?
* What are Data Marts?
* What are Fact tables and Dimension Tables?
* Twist: - What is Dimensional Modeling?
* Twist: - What is Star Schema Design?
* What is Snow Flake Schema design in database?
* Twist: - What’s the difference between Star and Snow flake schema?
* What is ETL process in Data warehousing?
* Twist: - What are the different stages in “Data warehousing”?
* What is “Data mining”?
* Compare “Data mining” and “Data Warehousing”?
* What are indexes?
* What are B-Trees?
* I have a table which has lot of inserts, is it a good database design to create indexes on that table?
* Twist:- Insert’s are slower on tables which have indexes, justify it?
* Twist: - Why do page splitting happen?
* What are “Table Scan’s” and “Index Scan’s”?
* What are the two types of indexes and explain them in detail?
* Twist: - What’s the difference between clustered and non-clustered indexes?