Core Java:-

1. **Overview of java**
2. **Variables**
    a. Declaring a variable
    b. Initializing a variable
    c. Dynamic initialization
    d. Scope and lifetime of variable
3. **Data types**
    a. Primitive Data types
    b. Non Primitive data types
    c. Size and range of data types
    d. Type conversion and type casting
    e. Implicit and explicit Type casting
    f. Arrays
4. **Operators**
    a. Arithmetic Operators
    b. Relational Operators
    c. Logical Operators
    d. Bitwise Operators
    e. Assignment Operators
5. **Control Statements**
    a. Decision Control
        i. Simple 'if'
        ii. 'if – else'
        iii. 'if – else Ladder'
    b. Loop Control
        i. 'for' loop
        ii. 'for-each' loop
        iii. 'while' loop
        iv. 'do – while' loop
        v. Nested loops
    c. Case Control
        i. 'Switch cases'
    d. Jump Control
        i. break
        ii. continue
        iii. return
    e. Exception control
6. **Classes and objects**
    a. Class declaration
    b. Creation of objects

c. Methods in class
d. Constructor
e. Types of constructors
f. Nested class
g. Abstract Class
h. Wrapper Class
i. 'this' keyword
j. 'final' keyword

7. Inheritance

a. Inheritance basics
b. Superclass
c. Subclass
d. 'super' keyword
e. Calling superclass constructor using super
f. Accessing superclass variables using super
g. When constructors get called
h. Single inheritance
i. Multilevel inheritance
j. Hierarchical inheritance

8. Methods

a. Method with parameters
b. Formal Parameters
c. Actual Parameters
d. Method returning a value
e. Method call by value
f. Method call by reference
g. Method Overloading
h. Method overriding
i. Dynamic method dispatch
j. Abstract Methods
k. Recursion
l. finalize method

9. Exception Handling

a. What is exception?
b. What is exception handling?
c. Advantage of exception handling
d. Keywords
    i. try
    ii. catch
    iii. finally
    iv. throw

v. throws
e. 'try - catch'
f. 'try' with multiple 'catch'
g. nested 'try'
h. 'try' – 'catch' – 'finally'
i. Custom exceptions
j. Difference between throw and throws
k. Difference among final, finally and finalize

10. Packages

a. What is java package
b. Advantages
c. Declaring package
d. Importing packages
e. Accessing class from packages
   i. Using package name
   ii. Using package_name.class_name
   iii. Using fully qualified name without import

11. Interfaces

a. Defining Interface
b. Applying interface
c. Variables in interfaces
d. Methods in interfaces
e. Implementing interface
f. Implementing multiple interfaces
g. Interfaces can be extended
h. Multiple inheritance using interface
i. Hybrid inheritance using interface
j. Interface v/s Abstract class
k. Interface v/s Class

12. Multithreading

a. What is multithreading
b. Advantages
c. Java Thread class
d. Thread Life cycle
e. Creation of thread extending Thread class
f. Creation of thread implementing Runnable interface
g. Creating multiple threads
h. Naming threads
i. Sleeping thread
j. Thread Priorities
k. Getting and setting thread priorities

l. Thread synchronization
m. Need of thread synchronization
n. Synchronized methods
o. Synchronized blocks
p. Inter-Thread communication
    i. wait
    ii. notify
    iii. notifyAll
q. Suspending and Resuming threads

13. Applets

a. Java Applet
b. Applet Lifecycle
c. Creating first applet
d. Basic shapes in applet
e. Image in applet
f. Animation in applet
g. Event handling applet

14. Socket Programing

a. Basics of network programming
b. Addresses
    i. Logical address
    ii. Physical address
c. DOS commands for addresses
d. What is socket
e. Implementing socket programming
f. Server – Client chat application