

Java:

1. What is difference between abstract class and Interface
2. What is Polymorphism
3. What is the difference between thread and process
4. Write a program for singleton class
5. How can we initialize a string value in singleton class?
6. Write a program for producer consumer
7. Why in java we can put element to a final hashmap? Discuss on memory level
8. What are different types of memory area in java
9. Internal Implementation of Hashmap
10. what is equals and Hashcode contract?
11. Can one use an Employee class (custom class) as a key in a HashMap? -> answer should be around hashCode and equals override
12. What is the datatype used in array of bucket ? and Map.Entry<T,T>
13. What is the difference between HashMap and ConcurrentHashMap
14. what is concurrent modification exception
15. What is treemap? Internal implementation
16. Internal Implementation of HashSet
17. What is Thread Safe
18. What is comparable and comparator
19. What is fail fast and fail safe iterator
20. What is try with resource
21. What is volatile keyword
22. Is volatile a thread safe? -> ans is No, but it helps us to achieve thread safety
23. What is Transient Keyword
24. What is atomic integer
25. Thread Life cycle
26. What is Executor service
27. What are different types of thread pool
28. How can we make a class immutable

29. Puzzles:

```
A  
m1()
```

```
B extends A  
m2()
```

```
main()
```

```
A a1 = new B();  
a1.m1();  
a1.m2();
```

```
B b1= new B1();  
b1.m1();  
b1.m2();
```

```
public class A{  
    static {  
  
        SOP("S-A");  
  
    }  
  
    A(){  
  
        SOP("C-A");  
  
    }  
}  
  
public class B extend A{  
  
    static {  
  
        SOP("S-B");  
  
    }  
  
    B(){  
  
        SOP("C-B");  
  
    }  
  
    public static void  
    main(String... arg){  
  
        new B();  
  
    }  
}
```

1)

What will be output of the below code(Considering i=0) -

```
public int divide(int i){  
    try{  
        int a = 10/i;  
    }catch(Exception e){  
        return 10;  
    }finally{  
        return 20;  
    }  
}
```

2)

Parent class ==> m1() throws IOException

Child class ==> m1()

==it will work? compile?

3)

Parent class ==> m1() throws IOException

Child class ==> m1() throws RuntimeException

==it will work? compile?

4)

Parent class ==> m1()

Child class ==> m1() throws IOException

==it will work? compile?

5)

Method Overloading - hello(String s),
hello(Object obj) , calling it like -
hello(null) - which one will it call

EMP==>

overrides

equals ==> comparing names

hashcode==> generates hashcode
on name+salary;

e1==> Pooja, 1000

e2==> Pooja, 2000

What will be the output of below=>

e1.equals(e2) // true

e1==e2 // false

```
@FunctionalInterface

public interface InterfaceDemo
extends Comparator<T>{

    public void demo();

}

@interface FunctionalInterface

interface InterfaceDemo2 extends
Serializable{

    abstract int hashCode();

    boolean equals(Object o);

    public void demo();

}

}
```

30. what is iterator and list iterator
31. What is Builder design pattern
32. What is Factory design pattern
33. What is SOLID Principal
34. What is dependency inversion
35. What is Synchronized
36. Consider a class A with a synchronized method

```
class A {
    public void synchronized m1() {
        Thread.sleep(5000);
    }
}
```

We create two objects of this class - o1 and o2. We call o1.m1() on one thread and o2.m1() on another thread, at the same time. What will be the behaviour?

37. Thread lifecycle
38. What is yield, wait, sleep, etc
39. Use multithreading to print 1A2B3C4D5E using two threads
40. What is callable interface
41. What is return type of callable
42. Runnable and Thread class
43. Few multithreading scenario based questions

Java 8:

1. What are the features of java 8
2. What is functional interface
3. What is default method
4. can we override toString method in functional interface?
5. What is lambda expression
6. What terminal and intermediate operator
7. What is stream
8. What is method reference
9. what is predicate
10. what is filter, map, flatmap
11. What is optional class
12. Suppose we have two interfaces A and B and both the interfaces are having same default method test and a child class is implementing both the interfaces then what will happen? Is it diamond problem? -> answer hint use Interfacename.super.test() in the implementation class.
13. What changes has been made on memory side in java 8?
14. What has been changed in hashmap from java 8
15. Java 8 programs. Such as find frequency of letter in a string, Employees 2nd highest salary, filter and map related program, etc.
16. What is completableFuture

Spring Boot:

1. What is the advantage of springboot over spring
2. What is the flow of springboot application
3. What are the annotations you have used in springboot
4. What is @SpringBootApplication
5. @Qualifier annotation
6. @Bean
7. Component vs Configuration annotation
8. @Controller vs @RestController
9. How to connect multiple db in springboot

10. How to disable tomcat and use jetty
11. what is dependency injection
12. how can we write custom queries in springboot
13. @PathVariable and @RequestParam
14. what is @EnableAutoConfiguration
15. Spring profile
16. What is spring actuator
17. How to handle exceptions globally
18. what is spring beans
19. what are the different ways of creating spring bean
20. can we use @Component instead of @Service
21. What will happen if we will not use @Service
22. If suppose we hit localhost:8080/hello on browser, what will be the flow of it
and how will springboot know that which method to execute
23. What is @Transactional
24. What is @Lazy
25. How to remove cyclic dependency of bean in springboot
26. How can we load few things from db at the time of server starts

Microservices:

Most of the microservice question was scenario based, so if these questions will be covered using what, why and how approach, it will be easy to answer in interview

1. what is different components in microservice architecture
2. what is circuit breaker
3. what is rate limiter
4. Implement rate limiter
5. How can you maintain data consistency in microservices
6. What is API gateway
7. What is service registry
8. What is loadbalancer
9. what is loadfactor in loadbalancing
10. what is each component of microservice
11. how do you handle cascading failure of services in microservice architecture
12. what is topic in kafka
13. what is publisher and subscriber
14. what is message queue

SQL:

1. What is indexing?
2. What are different types of join?
3. What is difference between DML and DDL

4. Find the second highest salary from table employee
5. Find the second highest salary from each dept.
6. Avg salary sql query
7. what is many to many relationship