Knowledge check:

SQL:

1. What is SQL? (Structured Query Language)
2. Primary Key, Foreign Key, Unique Key, Null
3. Basic Queries
4. SELECT – fetching data
5. WHERE – filtering rows
6. Comparison operators (=, <, >, <>, BETWEEN, LIKE, IN)
7. DISTINCT – removing duplicates
8. ORDER BY – sorting results
9. LIMIT / TOP / FETCH – restricting rows
10. COUNT(), SUM(), AVG(), MIN(), MAX()
11. GROUP BY – grouping data
12. HAVING – filtering groups (like WHERE but for groups)
13. INNER JOIN
14. LEFT JOIN (or LEFT OUTER JOIN)
15. RIGHT JOIN
16. FULL OUTER JOIN
17. SELF JOIN
18. Cross Join (CROSS JOIN)
19. Subqueries vs Join
20. Insert into, Insert into returning
21. What are indexes?
22. What are views (CREATE VIEW)

**PL/SQL**

1. What are the sections in a PL/pgSQL block?  
   (DECLARE, BEGIN ... END, EXCEPTION)
2. What is EXCEPTION WHEN others THEN?
3. How to write IF-THEN-ELSE?
4. Examples of LOOP, WHILE, FOR.ion

**Mongodb:**

1. Basic crud (insert many, insert one, find one, find with filter, update with filter
2. What is sharding, replication

**Spring Cloud:**

1. Why do we need Spring Cloud in microservices?
2. What is service discovery?
3. How does Eureka work in Spring Cloud?
4. What is an API Gateway?
5. Can Gateway handle authentication and rate limiting?
6. What is Spring Cloud Config?
7. What is a circuit breaker in microservices?
8. Difference between client-side and server-side load balancing.
9. Why we use feign?

**Microservices:**

1. What are microservices?
2. How are microservices different from monolithic applications?
3. What are the advantages of microservices?
4. What are the challenges of microservices
5. How do microservices communicate with each other? (Sync vs Async)
6. Can microservices share a single database? Why or why not?
7. What is the **Database per service** pattern?
8. What does auto-scaling mean in microservices?
9. What is event driven architecture?

**Python:**

1. What are lists, tuples, sets, and dictionaries?
2. What are global and local variables?
3. What is the difference between is , in and ==?
4. What are if, elif, and else statements?
5. Difference between for and while loops?
6. What is the difference between break, continue, and pass?
7. How do you define a function in Python?
8. How to read/ write files? Difference between read(), readline(), and readlines()?
9. Difference between try-except and try-finally?
10. What is the purpose of raise?
11. How to define class, inheritance, association, abstraction, polymorphism
12. Self and super keywords
13. Lambdas in python
14. What is virtual env?

**Cloud fundamentals:**

1. What are the benefits of cloud computing?
2. What are the main types of cloud deployment models?  
   (Public, Private, Hybrid, Multi-cloud)
3. What are the main cloud service models?  
   (IaaS, PaaS, SaaS — explain with examples)
4. What is auto-scaling?
5. What is load balancing?
6. What is IAM (Identity and Access Management)?
7. Basic services (Compute, Storage, Networking, Database)

**Software testing:**

Based on what covered by Renuka

**GenAI:**

What is Generative AI?

How is Generative AI different from traditional AI/ML?

What is a Large Language Model (LLM)?

What is prompt engineering?