

Started on	Wednesday, 20 August 2025, 12:35 PM
State	Finished
Completed on	Wednesday, 20 August 2025, 12:47 PM
Time taken	12 mins 32 secs
Marks	28.00/30.00
Grade	93.33 out of 100.00

Question 1

Complete

Mark 1.00 out of 1.00

A stale cache is refreshed using which mechanisms?

- ☐ a. CDN hashing
- ☐ b. DNS lookup
- ☐ c. SSL handshake
- ☒ d. ETag, Last-Modified

Question 2

Complete

Mark 1.00 out of 1.00

Cursor pagination is more suitable than offset pagination in:

- ☐ a. Analytics queries
- ☐ b. Small static datasets
- ☐ c. Batch processing
- ☒ d. Real-time feeds (e.g., Twitter, FB)

Question 3

Complete

Mark 1.00 out of 1.00

When the circuit breaker is in half-open state, it:

- ☒ a. Allows limited test requests
- ☐ b. Rejects all requests
- ☐ c. Closes permanently
- ☐ d. Allows all requests

Question 4

Complete

Mark 1.00 out of 1.00

Edge caching reduces:

- ☐ a. CAP tradeoffs
- ☐ b. Authentication overhead
- ☒ c. Bandwidth and latency
- ☐ d. Database consistency issues

Question 5

Complete

Mark 1.00 out of 1.00

Which issue is most likely avoided by cursor pagination?

- ☒ a. Duplicate/missing rows due to inserts/deletes
- ☐ b. Phantom reads
- ☐ c. Slow writes
- ☐ d. Deadlocks

Question 6

Complete

Mark 1.00 out of 1.00

How does an Idempotency-Key prevent duplicate booking?

- ☐ a. Client retries endlessly
- ☐ b. Cache invalidation
- ☒ c. Server checks key before creating resource
- ☐ d. Server ignores POST body

Question 7

Complete

Mark 1.00 out of 1.00

Which algorithm ensures that clients with the same IP always hit the same server?

- ☒ a. IP Hash
- ☐ b. Round Robin
- ☐ c. Random
- ☐ d. Least Connections

Question 8

Complete

Mark 1.00 out of 1.00

Which failure scenario motivates using a circuit breaker?

- ☒ a. Downstream timeout propagation
- ☐ b. High CPU usage
- ☐ c. Duplicate requests
- ☐ d. Cache misses

Question 9

Complete

Mark 1.00 out of 1.00

Which status code is returned if cached content is still valid?

- ☐ a. 503 Service Unavailable
- ☒ b. 304 Not Modified
- ☐ c. 202 Accepted
- ☐ d. 200 OK

Question 10

Complete

Mark 1.00 out of 1.00

Which theorem better represents real-world distributed DBs?

- ☐ a. FLP
- ☐ b. BASE
- ☒ c. PACELC
- ☐ d. CAP

Question 11

Complete

Mark 1.00 out of 1.00

Circuit breakers primarily prevent:

- ☒ a. Cascading failures
- ☐ b. Deadlocks
- ☐ c. Network congestion
- ☐ d. Resource starvation

Question 12

Complete

Mark 1.00 out of 1.00

An API gateway enforces 10 requests/sec per user. Which mechanism fits?

- ☒ a. Token Bucket
- ☐ b. Idempotent POST
- ☐ c. CAP theorem
- ☐ d. Circuit breaker

Question 13

Complete

Mark 1.00 out of 1.00

DynamoDB is classified as:

- ☐ a. CA
- ☐ b. CP
- ☒ c. AP
- ☐ d. PC

Question 14

Complete

Mark 0.00 out of 1.00

In payment systems, idempotent POSTs prevent:

- ☒ a. Overwrites
- ☐ b. Double charges
- ☐ c. Network delay
- ☐ d. Session expiry

Question 15

Complete

Mark 1.00 out of 1.00

PACELC extends CAP by adding which tradeoff when no partition exists?

- ☐ a. Partition vs Availability
- ☒ b. Latency vs Consistency
- ☐ c. Durability vs Performance
- ☐ d. Fault tolerance vs Throughput

Question 16

Complete

Mark 1.00 out of 1.00

Which system is most likely AP under CAP?

- ☐ a. Mongo (in strong consistency mode)
- ☒ b. DynamoDB
- ☐ c. HBase
- ☐ d. Spanner

Question 17

Complete

Mark 0.00 out of 1.00

In a Token Bucket system with a fill rate of 5 tokens/sec and a bucket size of 20, what happens if 50 requests arrive instantly at $t=0$?

- ☐ a. All requests pass
- ☐ b. 25 requests pass, 25 delayed
- ☐ c. 20 requests pass, 30 delayed/rejected
- ☒ d. All rejected

Question 18

Complete

Mark 1.00 out of 1.00

At which OSI layer does an Application Load Balancer operate?

- ☐ a. Layer 3
- ☒ b. Layer 7
- ☐ c. Layer 2
- ☐ d. Layer 4

Question 19

Complete

Mark 1.00 out of 1.00

Why does Offset pagination degrade for large datasets?

- ☐ a. Index corruption
- ☒ b. Full table scan with skipped rows
- ☐ c. CPU limits
- ☐ d. Cursor invalidation

Question 20

Complete

Mark 1.00 out of 1.00

Which of the following is a direct drawback of Token Bucket under high sustained load?

- ☐ a. Over-acceptance of requests
- ☐ b. Memory overhead due to token storage
- ☒ c. Token starvation leading to request throttling
- ☐ d. Unfairness between clients

Question 21

Complete

Mark 1.00 out of 1.00

You design a news feed API requiring real-time, no duplicates. Which pagination?

- ☐ a. Offset
- ☐ b. Keyset
- ☐ c. Random sampling
- ☒ d. Cursor

Question 22

Complete

Mark 1.00 out of 1.00

In a network partition, a system cannot provide both:

- ☐ a. Partition tolerance and Latency
- ☒ b. Consistency and Availability
- ☐ c. Durability and Partition tolerance
- ☐ d. Consistency and Latency

Question 23

Complete

Mark 1.00 out of 1.00

If consistency is preferred over latency in normal conditions, the system follows:

- ☐ a. CP
- ☐ b. AP/EC
- ☐ c. PA/EL
- ☒ d. PC/EC

Question 24

Complete

Mark 1.00 out of 1.00

A financial system requiring strict account balances across replicas would likely prefer:

- ☐ a. AP system
- ☐ b. BASE model
- ☐ c. Eventually consistent
- ☒ d. CP system

Question 25

Complete

Mark 1.00 out of 1.00

Why is POST usually non-idempotent?

- ☐ a. Caching conflicts
- ☐ b. Stateless nature of HTTP
- ☒ c. Multiple calls create duplicates
- ☐ d. Authentication required

Question 26

Complete

Mark 1.00 out of 1.00

Why is the Token Bucket preferred over the Leaky Bucket for API rate limiting?

- ☒ a. Supports traffic bursts up to bucket capacity
- ☐ b. Ensures zero packet loss
- ☐ c. Consumes fewer resources
- ☐ d. Handles only uniform traffic

Question 27

Complete

Mark 1.00 out of 1.00

A service hits a downstream dependency with 95% timeouts. Which resilience pattern helps first?

- ☐ a. Edge caching
- ☐ b. Load balancing
- ☒ c. Circuit breaker
- ☐ d. PACELC

Question 28

Complete

Mark 1.00 out of 1.00

Which is not a common load balancer feature?

- ☒ a. Circuit breaking
- ☐ b. Caching
- ☐ c. Health checks
- ☐ d. SSL termination

Question 29

Complete

Mark 1.00 out of 1.00

Google Spanner is classified as:

- ☐ a. CA
- ☐ b. CP/AP
- ☐ c. PA/EL
- ☒ d. PC/EC

Question 30

Complete

Mark 1.00 out of 1.00

CDN responds instantly to a video request from India. Likely cause?

- ☐ a. Token Bucket
- ☐ b. Cache miss
- ☒ c. Cache hit at edge
- ☐ d. PACELC