Voting Systems – Quiz

Cryptoeconomics

Question 1

What is simple token voting?

A. Voting with physical tokens
B. One token equals one vote
C. Quadratic voting
D. Reputation-based voting

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Answer: B
Simple token voting gives voting power proportional to token holdings: 1 token = 1 vote.

Question 2

What is the main criticism of simple token voting?

A. Too slow
B. Plutocratic - whales dominate decisions
C. Too complex
D. Requires too much gas

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Answer: B
Token voting is plutocratic: wealthy holders (whales) have disproportionate influence over governance.

Question 3

In quadratic voting, what is the cost of casting 4 votes?

A. 4 credits
B. 8 credits
C. 16 credits
D. 64 credits

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Answer: C

Quadratic voting uses cost = n^2, so 4 votes cost 4^2 = 16 credits.

Question 4

What problem does quadratic voting address?

A. Transaction speed
B. Balancing preference intensity with fair representation
C. Mining difficulty
D. Wallet security

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Answer: B
Quadratic voting prevents vote concentration while allowing strong preferences to be expressed at increasing cost.

Question 5

What is a veToken?

A. A verification token
B. A vote-escrowed token that gains power from time-locking
C. A volatile token
D. A venture token

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B. A vote-escrowed token that gains power from time-locking

C. A volatile token

D. A venture token

Answer: B
veTokens (vote-escrowed) require locking tokens for a period; longer locks mean more voting power.

Question 6

Which protocol pioneered the veToken model?

A. Uniswap
B. Curve Finance
C. Aave
D. Compound

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Answer: B
Curve Finance introduced veCRV, where users lock CRV for up to 4 years to gain voting power.

Question 7

What is Curve Finance's veCRV voting power formula?

A. VP = tokens
B. VP = tokens * (time_remaining / max_lock)
C. VP = tokens^2
D. VP = sqrt(tokens)

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Answer: B
This is Curve Finance's veCRV formula specifically. Voting power decays linearly as the lock period approaches expiration. Other veToken implementations (Balancer's veBAL, Velodrome's veVELO, etc.) may use different formulas.

Question 8

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A. Voting based on social media followers
B. Voting power earned through participation and contributions
C. Voting based on token holdings
D. Anonymous voting

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Answer: B
Reputation systems grant voting power based on earned reputation from contributions, not purchased tokens.

Question 9

Why might reputation use square root (sqrt) transformation?

A. To increase power for top contributors
B. To reduce the influence of extreme reputation accumulation
C. To simplify calculations
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Answer: B
Square root transformation (VP = sqrt(REP)) provides diminishing returns, preventing reputation whales.

Question 10

What is conviction voting?

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B. Voting power that builds over time while supporting a proposal
C. One-time voting
D. Anonymous voting

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Answer: B
Conviction voting accumulates power the longer you support a proposal, rewarding sustained commitment.

Question 11

Which organization uses conviction voting for grants?

A. Uniswap
B. 1Hive (Gardens)
C. MakerDAO
D. Compound

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Answer: B
1Hive's Gardens platform uses conviction voting for continuous community funding decisions.

Question 12

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A. 51% attack
B. Last-minute vote manipulation
C. Sybil attack
D. Reentrancy attack

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Answer: B
Because conviction builds slowly, attackers cannot suddenly influence outcomes at the last moment.

Question 13

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A. Network speed
B. Preventing single entities from creating multiple identities to gain extra votes
C. Token price stability
D. Smart contract bugs

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Answer: B
Sybil resistance prevents attackers from splitting tokens across multiple addresses to circumvent voting rules.

Question 14

What is delegated voting?

A. Voting is delayed
B. Token holders assign their voting power to representatives
C. Votes are deleted
D. Automatic voting

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Answer: B
Delegation allows passive token holders to assign voting power to active, informed participants.

Question 15

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A. Photo storage
B. Off-chain, gas-free governance voting
C. Token trading
D. Mining pools

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Answer: B
Snapshot.org enables gas-free voting using signed messages, with votes stored off-chain.

Question 16

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A. Measuring transaction speed
B. Measuring inequality in voting power distribution
C. Calculating gas fees
D. Determining block rewards

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A. Measuring transaction speed
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Answer: B
The Gini coefficient measures voting power inequality; 0 = perfect equality, 1 = maximum inequality.

Question 17

What is the formula for Gini coefficient calculation?

A. G = mean / median
B. G = 1 - 2 * (area under Lorenz curve)
C. G = variance / mean
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Answer: B
Gini is calculated as 1 minus twice the area under the Lorenz curve, or equivalently using ranked differences.

Question 18

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C. Lightning network voting
D. Emergency voting

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D. Emergency voting

Answer: B
Flash loan attacks borrow tokens within one transaction to manipulate votes. Example: Beanstalk (2022) lost $182M when an attacker used a flash loan to pass a malicious governance proposal.

Question 19

What is the 'voting trilemma'?

A. Speed, cost, security
B. Sybil resistance, fairness, simplicity
C. Privacy, transparency, efficiency
D. Tokens, votes, rewards

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B. Sybil resistance, fairness, simplicity
C. Privacy, transparency, efficiency
D. Tokens, votes, rewards

Answer: B
The voting trilemma suggests trade-offs between Sybil resistance, fair representation, and implementation simplicity.

Question 20

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B. Minimum participation required for a vote to be valid
C. Maximum votes allowed
D. Voting fee

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Answer: B
Quorum is the minimum number of votes or participation percentage required for a proposal to pass.

Question 21

A DAO uses quadratic voting to allocate a 1000 ETH treasury. Alice has 100 credits and Bob has 400 credits. Alice allocates all credits to Proposal A (10 votes). Bob wants to match Alice's influence on Proposal A. How many credits must Bob spend?

A. 10 credits
B. 40 credits
C. 100 credits
D. 400 credits

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A. 10 credits

B. 40 credits

C. 100 credits

D. 400 credits

Answer: C

Quadratic voting uses cost = votes^2. Alice spent 100 credits for sqrt(100) = 10 votes. For Bob to also cast 10 votes, he needs 10^2 = 100 credits. Quadratic voting equalizes influence by making large vote counts exponentially expensive, so Bob's 4x wealth advantage doesn't translate to 4x voting power on this issue.

Question 22

In a veToken system, Alice locks 1000 tokens for 4 years (max lock) and receives 1000 voting power. Bob locks 500 tokens for 2 years. Assuming linear time weighting (VP = tokens * time_remaining / max_lock), what is Bob's initial voting power?

A. 250 VP
B. 500 VP
C. 1000 VP
D. 2000 VP

Question 22

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A. 250 VP
B. 500 VP
C. 1000 VP
D. 2000 VP

Answer: A
VP = tokens * (lock_time / max_lock) = 500 * (2/4) = 500 * 0.5 = 250 VP. Bob's shorter commitment period halves his effective voting power compared to if he locked for the full 4 years. This incentivizes long-term alignment by rewarding patience with greater governance influence.

Question 23

A DAO allows vote delegation. Alice delegates her 1000 tokens to Bob. Bob already holds 500 tokens and receives delegations from Carol (300 tokens). A proposal requires 30% quorum of the 10,000 total token supply. Bob votes YES. How much does Bob's vote contribute toward meeting quorum?

A. 500 tokens (5%)
B. 1300 tokens (13%)
C. 1800 tokens (18%)
D. 3000 tokens (30%)

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Answer: C

Bob's voting power = his tokens (500) + Alice's delegation (1000) + Carol's delegation (300) = 1800 tokens = 18% of total supply. Delegation aggregates voting power with the delegate, so Bob's single vote counts as 1800 tokens toward the 30% quorum threshold (3000 tokens needed). This shows how delegation can concentrate power.

Question 24

A DAO suffers a governance attack where an attacker borrows 51% of tokens via flash loan, passes a malicious proposal to drain the treasury, and repays the loan—all in one transaction. Which defense would be MOST effective?

A. Increase quorum to 60%

B. Implement a timelock delay between proposal approval and execution

C. Require quadratic voting

D. Use Snapshot for off-chain voting

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A. Increase quorum to 60%

B. Implement a timelock delay between proposal approval and execution

C. Require quadratic voting

D. Use Snapshot for off-chain voting

Answer: B

A timelock delay (e.g., 48 hours) prevents same-block execution, making flash loan attacks impossible since loans must be repaid in the same transaction. The attacker cannot hold borrowed tokens through the delay period. Quorum increases don't help (attacker has 51%). Quadratic/Snapshot don't prevent flash loans. Timelocks are the standard defense against governance flash loan attacks.

Question 25

A DAO proposes to change from simple token voting (1 token = 1 vote) to conviction voting to prevent whale dominance. However, a core contributor warns this could harm the DAO. What is the most likely risk?

A. Conviction voting requires more gas
B. Decisions become extremely slow as conviction builds gradually
C. Conviction voting is more vulnerable to Sybil attacks
D. Large holders will leave the DAO

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A. Conviction voting requires more gas

B. Decisions become extremely slow as conviction builds gradually

C. Conviction voting is more vulnerable to Sybil attacks

D. Large holders will leave the DAO

Answer: B

Conviction voting accumulates voting power slowly over time (days/weeks), making rapid decisions difficult. This creates governance paralysis during crises requiring quick action (security patches, emergency withdrawals, market responses). While conviction voting reduces whale dominance and last-minute manipulation, the trade-off is decision latency. DAOs often use hybrid models: conviction for funding, token voting for urgent issues.

Question 26 (True/False)

One token equals one vote in all DAOs.

A. True
B. False

Question 26 (True/False)

One token equals one vote in all DAOs.

A. True

B. False

Answer: False

While simple token voting uses 1 token = 1 vote, many DAOs use alternative systems like quadratic voting, reputation-based voting, veTokens, or conviction voting to reduce plutocracy and improve fairness.

Question 27 (True/False)

Quadratic voting reduces whale influence.

A. True
B. False

Question 27 (True/False)

Quadratic voting reduces whale influence.

A. True

B. False

Answer: True

Quadratic voting uses cost = votes^2, making large vote counts exponentially expensive. This reduces the influence of wealthy whales while allowing them to express strong preferences at increasing cost.

Question 28 (True/False)

Snapshot voting happens on-chain.

A. True
B. False

Question 28 (True/False)

Snapshot voting happens on-chain.

A. True

B. False

Answer: False

Snapshot.org enables off-chain, gas-free voting using signed messages. Votes are stored off-chain, making it free to participate. However, execution typically requires separate on-chain transactions.

Question 29 (True/False)

Delegation allows others to vote on your behalf.

A. True
B. False

Question 29 (True/False)

Delegation allows others to vote on your behalf.

A. True

B. False

Answer: True

Vote delegation allows token holders to assign their voting power to representatives (delegates) who vote on their behalf, enabling passive holders to participate through active, informed participants.

Question 30 (True/False)

veToken voting rewards long-term holders.

A. True
B. False

Question 30 (True/False)

veToken voting rewards long-term holders.

A. True

B. False

Answer: True

veToken (vote-escrowed token) systems require locking tokens for a period. Longer lock periods grant more voting power, incentivizing long-term commitment and alignment with protocol success.

Question 31 (True/False)

Conviction voting allows instant decision-making.

A. True
B. False

Question 31 (True/False)

Conviction voting allows instant decision-making.

A. True

B. False

Answer: False

Conviction voting accumulates power slowly over time while supporting a proposal. This prevents instant decisions and last-minute manipulation but creates governance latency, making rapid responses to crises difficult.

Question 32 (True/False)

A Gini coefficient of 0 indicates perfect equality in voting power.

A. True
B. False

Question 32 (True/False)

A Gini coefficient of 0 indicates perfect equality in voting power.

A. True

B. False

Answer: True

The Gini coefficient measures inequality from 0 (perfect equality - everyone has equal voting power) to 1 (maximum inequality - one entity holds all power). It's used to analyze voting power distribution in DAOs.

Question 33 (Fill in the Blank)

___ **voting squares your voting weight by the square root.** *Hint: Cost = votes squared...*

Question 33 (Fill in the Blank)

___ **voting squares your voting weight by the square root.** *Hint: Cost = votes squared...* **Answer: Quadratic**

Quadratic voting uses cost = votes^2, making large vote counts exponentially expensive and reducing whale dominance.

Question 34 (Fill in the Blank)

___ **allows others to vote on your behalf.** *Hint: Assigning your voting power...*

Question 34 (Fill in the Blank)

___ **allows others to vote on your behalf.** *Hint: Assigning your voting power...* **Answer: Delegation**

Vote delegation allows token holders to assign their voting power to representatives who vote on their behalf.

Question 35 (Fill in the Blank)

ve___ tokens give more weight to long-term holders. *Hint: Vote-escrowed...*

Question 35 (Fill in the Blank)

ve___ tokens give more weight to long-term holders. *Hint: Vote-escrowed...* **Answer: Token**

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