

Skill Labs - Day 01 - Blockchain Concepts

Total questions: 20

Worksheet time: 3mins

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Name Class Date 1. What is Distributed Ledger Technology (**DLT**)?

- a) A type of ledger that is only used for cryptocurrency transactions.
- b) Decentralized database that is shared and synchronized across multiple locations, enabling secure and transparent transaction recording.
- c) A technology that only records transactions without any security features.
- d) A centralized database that restricts access to a single location.

2. Explain the concept of blockchain **hashing**.

- a) Blockchain hashing is the method of encrypting data to create a secure network connection.
- b) Blockchain hashing involves storing data in a decentralized manner without any encryption.
- c) Blockchain hashing is the technique of compressing data into a smaller size for faster processing.
- d) Blockchain hashing is the process of converting input data into a fixed-size string using a cryptographic hash function, ensuring data integrity and security.

3. What is a **Merkle Tree** and its purpose in blockchain?

- a) A Merkle Tree is a data structure that enables efficient data verification and integrity in blockchain.
- b) A Merkle Tree is a consensus algorithm used for transaction validation in blockchain.
- c) A Merkle Tree is a graphical representation of blockchain transactions for user interfaces.
- d) A Merkle Tree is a type of cryptocurrency wallet for storing digital assets.

4. Differentiate between public and private blockchains.

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| a) Public blockchains are private and centralized, while private blockchains are open and decentralized. | b) Public blockchains are open and decentralized, while private blockchains are restricted and controlled. |
| c) Public blockchains are slow and inefficient, while private blockchains are fast and scalable. | d) Public blockchains are controlled and restricted, while private blockchains are open and decentralized. |

5. What are the key components of Ethereum's architecture?

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| a) Ethereum Wallet, miners, smart contracts, transaction fees | b) Decentralized Apps (DApps), tokens, validators, network latency |
| c) Ethereum Virtual Machine (EVM), blockchain, nodes, consensus mechanism | d) Proof of Work, sidechains, oracles, user interface |

6. How does Solana's architecture differ from Ethereum's?

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| a) Solana's architecture features Proof of History for high throughput, while Ethereum uses Proof of Work/Proof of Stake. | b) Solana's design is based on Proof of Stake, whereas Ethereum utilizes Proof of History. |
| c) Solana uses Proof of Work for security and Ethereum employs Proof of History for speed. | d) Ethereum's architecture supports parallel processing while Solana relies on sequential processing. |

7. What is the role of consensus mechanisms in blockchain?

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| a) Consensus mechanisms validate user identities and manage access control. | b) Consensus mechanisms ensure agreement among nodes on transaction validity and maintain data integrity in blockchain. |
| c) Consensus mechanisms store transaction history in a centralized database. | d) Consensus mechanisms encrypt data to enhance security in blockchain. |

8. Define the term 'smart contract' in the context of blockchain.

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| a) A smart contract is a legal agreement that requires notarization before execution. | b) A smart contract is a traditional contract stored in a secure database. |
| c) A smart contract is a self-executing contract with the terms of the agreement directly written into code on a blockchain. | d) A smart contract is a physical document signed by parties involved in a transaction. |

9. What are the advantages of using a private blockchain?
- a) Limited scalability and accessibility
 - b) Reduced transparency and trust
 - c) Enhanced privacy and security, faster transaction speeds, greater control over governance and compliance.
 - d) Higher costs for transactions
10. Explain the significance of cryptographic hashing in blockchain.
- a) Cryptographic hashing eliminates the need for consensus in blockchain.
 - b) Cryptographic hashing ensures data integrity, security, and immutability in blockchain.
 - c) Cryptographic hashing slows down transaction processing in blockchain.
 - d) Cryptographic hashing is used for user authentication in blockchain.
11. What is the purpose of a nonce in blockchain mining?
- a) The purpose of a nonce in blockchain mining is to find a valid hash for a block.
 - b) The nonce helps in verifying user identities.
 - c) The nonce is used to store transaction data.
 - d) The nonce is a type of cryptocurrency wallet.
12. How do Merkle Trees enhance data integrity in blockchains?
- a) Merkle Trees store data in a linear format for easy access.
 - b) Merkle Trees enhance security by encrypting all data blocks.
 - c) Merkle Trees enhance data integrity by enabling efficient verification of data changes and detecting tampering.
 - d) Merkle Trees improve speed by reducing transaction times.
13. What are the main use cases for blockchain technology in finance?
- a) Real estate transactions and property management
 - b) Main use cases for blockchain in finance include cryptocurrencies, cross-border payments, settlement processes, smart contracts, and identity verification.
 - c) Supply chain tracking and logistics management
 - d) Social media integration and advertising

14. Compare the transaction speeds of Solana and Ethereum.
- a) Solana operates at 10,000 TPS while Ethereum runs at 15 TPS.
 - b) Solana is faster than Ethereum, with speeds of 65,000 TPS compared to Ethereum's 30 TPS.
 - c) Ethereum has a higher speed than Solana, with 50,000 TPS compared to Solana's 20,000 TPS.
 - d) Both Solana and Ethereum have similar speeds, averaging around 40 TPS each.
15. What is the role of validators in a blockchain network?
- a) Validators create new cryptocurrencies in a blockchain network.
 - b) Validators verify and validate transactions and blocks in a blockchain network.
 - c) Validators store all user data in a blockchain network.
 - d) Validators manage the user interface of a blockchain network.
16. Define 'tokenomics' and its importance in blockchain projects.
- a) Tokenomics is the technical infrastructure of a blockchain network.
 - b) Tokenomics is the legal framework governing blockchain transactions.
 - c) Tokenomics refers to the marketing strategy of a blockchain project.
 - d) Tokenomics is the economic model of a blockchain project, essential for sustainability and user engagement.
17. What is the difference between a coin and a token?
- a) A coin is a digital asset that can only be used within a specific platform.
 - b) A coin is a standalone digital currency with its own blockchain, while a token is a digital asset built on an existing blockchain.
 - c) A token is a physical currency used in transactions, while a coin is digital.
 - d) A coin is a type of token that exists on multiple blockchains.
18. How does Algorand achieve scalability in its architecture?
- a) Algorand relies on a centralized authority for transaction validation.
 - b) Scalability is achieved through a single-layer transaction processing system.
 - c) Algorand achieves scalability through its Pure Proof of Stake consensus mechanism and separation of consensus and transaction processing layers.
 - d) Algorand uses a traditional Proof of Work model for consensus.

19. What are the security implications of public blockchains?

- a) Public blockchains guarantee complete anonymity for all users.
- b) Public blockchains require no security measures whatsoever.
- c) Public blockchains are completely immune to hacking attempts.
- d) Public blockchains have security implications including transparency risks, susceptibility to 51% attacks, and the need for robust cryptographic measures.

20. Explain the concept of fork in blockchain technology.

- a) A fork in blockchain technology is a method to increase transaction speed by merging chains.
- b) A fork in blockchain technology refers to a temporary pause in the network for maintenance.
- c) A fork in blockchain technology is a change in the protocol that creates a divergence in the blockchain, resulting in two separate chains.
- d) A fork in blockchain technology is a tool used to enhance security by encrypting data.