Blockchai Basics:

Week 1

1.
Question 1
What is the genesis block?

1 / 1 point

The last block created in the Blockchain

The first transaction in each block

The first block of a Blockchain

Any block created by the founder

Correct
Correct.

2.
Question 2
Inspect and explore block #0 using https://www.blockchain.com/btc/block/0 to solve the below question.

How many transactions are there in the Genesis block in Bitcoin?

1 / 1 point

0

8893

1

10

Correct

Correct.

3.

Question 3

Inspect and explore block #0 using this link to solve the below question.

How many transactions are there in the Genesis block in Ethereum (other than the transaction for Miner fee)?

1 / 1 point

0

1

50

8893

Correct

Correct.

4.

Question 4

Inspect and explore block #490624 using this link to solve the below question.

What is the hash of the previous block for Bitcoin block #490624? Copy and paste the answer into the box below.

1 / 1 point

000000000000000004239f2a01d8f579bc0dbb214d0f874ece5db587bee3457

Correct

Correct!

5.

Question 5

Inspect and explore block #490624 using this link to solve the below question.

Which of these fields is present in a Bitcoin block summary?

1 / 1 point

Private Key of the Sender

Gas Used

Difficulty

Gas Limit

Correct
Correct.

6.
Question 6
Where are the transactions recorded in a blockchain?

1 / 1 point

On a distributed immutable ledger

On a centralized immutable ledger

On a SQLite Database

On a SQL Database

Correct
Correct.

7.
Question 7
What are UTXOs in a Bitcoin Blockchain?

1 / 1 point

These are rewards for miners

These are actual currency that is sent to the receiver of a transaction

These form the inputs and outputs for transactions

These are transaction output that has been expended

Correct
Correct.

8.

Question 8
Blockchain was created to support security and trust in a _____ environment of the cryptocurrency Bitcoin.

1 / 1 point

decentralized trusted

centralized trusted

centralized trustless

decentralized trustless

Correct
Correct!

9.

Question 9
What/Who are miners in a blockchain?

1 / 1 point

An algorithm that you can use to calculate the next block in a blockchain

A person who just initiates a transaction in the blockchain

Computers that validate and process blockchain transactions and solve the cryptographic puzzle to add new blocks

A person who receives money as the receiver of the transaction

Correct
Correct.

Week 2

1.

Question 1

Inspect and explore block #4390176 using this link to solve the below question.

What is the previous block hash of block #4390176 in Ethereum Blockchain? Provide the answer in the box below.

1 / 1 point

0xc253f0917b33b2947b4d9cdb7ad656cc0233ef1781984384284f3a91810a8a36

Correct

Correct!

2.

Question 2

Inspect and explore block #4390176 using this link to solve the below question.

What is the total difficulty for block #4390176 in Ethereum Blockchain? Provide the answer in the box below.

1 / 1 point

1,226,797,074,502,984,598,563

Correct

Correct!

3.

Question 3

Inspect and explore the transaction with the hash "0x5edb69874d0900d8857468fbe53715cc1a58137709b8b70e46299bf10983dc09" using this link.

Approximately, how many Ethers are transferred in this transaction?

1 / 1 point

- 4434720 ethers
- 913.268 ethers
- 21000 ethers
- 0.00042 ethers

Correct

Correct!

4.

Question 4

Inspect and explore the transaction with the hash "0x5edb69874d0900d8857468fbe53715cc1a58137709b8b70e46299bf10983dc09" using this link.

What is the address of the sender in this transaction? Provide the answer below in the textbox.

1 / 1 point

0xf9fba58d8345bd3100c5adf3b8b51938e5da0a9d

Correct

Correct!

5.

Question 5

Which of the following is true about an externally owned account (EOA) in Ethereum Homestead?

1 / 1 point

EOAs have associated code with them.

EOAs can send transactions (ether transfer or invoke a contract code)

EOAs execute code when triggered by a transaction.

Correct

Correct!

6.

Question 6

External Owned Accounts (EOA) are controlled by ____.

1 / 1 point

Private Key

Hash of the first transaction by that account

Public Key and Private Key

Public Key

Correct
Correct!

7.

Question 7
What is the differentiating factor between the Ethereum Blockchain and the Bitcoin blockchain?

1 / 1 point

- (•) Smart contracts
- ( ) Currency Exchange
- ( ) Wallets
- ( ) Distributed ledger

Correct
Correct!

8.

Question 8
Calculate the amount of gas points required to execute an operation that involves 2 steps and 1 load from memory. Use the following image.

Operation name	Gas Cost
Step	1
Load from memory	20
Store into memory	100
Transaction base fee	21000
Contract creation	53000
…	…

1 / 1 point

1

22

23

42

Correct
Correct!

9.

Question 9

What is the correct sequence involved in a block creation:

1. Transactions validated

2. Transactions Bundled & broadcasted

3. Transaction initiated

4. Block added to the local chain and propagated to the network.

5. Proof of work consensus problem solved

0 / 1 point

- (•) 3,2,1,4,5
- ( ) 1,2,3,4,5
- ( ) 3,1,2,5,4
- ( ) 5,3,1,2,4

Incorrect
Incorrect!

Week 3

1.

Question 1

The transaction Merkle Tree root value in a Bitcoin block is calculated using _____.

1 / 1 point

- (•) hash of transactions
- ( ) none
- ( ) previous block’s hash
- ( ) number of transactions

Correct
Correct.

2.

Question 2

Follow the steps given in the tool at this link to manually calculate the hash of the block #490624. You can obtain the details required in the tool from this link.

What is the hash of the block #490624? Copy and paste the answer.

1 / 1 point

00000000000000000d4c8b9d5388e42bf084e29546357c63cba8324ed4ec8bf

Correct
Correct

3.

Question 3

Follow the guidelines in the encryption tool at this link to better understand the concept of Public-Private key encryption and answer the question below.

When encrypting a message with the public key, which key is required to decrypt the message?

1 / 1 point

Both Public key and Private key

Public Key

Private Key

Inverted Public Key

Correct
Correct

4.

Question 4

What type of hashing algorithm does Bitcoin blockchain use to determine the hash of a block?

1 / 1 point

MD5

SHA-512

SHA-1

SHA-256

Correct
That’s correct. Bitcoin uses: SHA256(SHA256(Block_Header))

5.
Question 5
In Ethereum, which algorithm is applied to the private key in order to get a unique public key.

1 / 1 point

SHA 256

ECC

Keccak

RSA

Correct
That’s correct. Addresses of account are generated using the public key-private key pair. First, a 256-bit random number is generated and designated as a private key, kept secure and locked using a passphrase. Then an ECC algorithm is applied to the private key to get a unique public key.

6.
Question 6
Which of the following methods can be used to obtain the original message from its generated hash message using SHA-256?

1 / 1 point

Original message cannot be retrieved

Hashing the generated hash again, twice

Hashing the reverse of generated hash

Hashing the generated hash again

Correct
That's correct. SHA-256 is a one-way hash function, that is a function which is infeasible to invert.

7.

Question 7
In Ethereum, hashing functions are used for which of the following?

1. Generating state hash.

2. Generating account addresses.

3. Decrypting senders message.

4. Generating block header hash.

1 / 1 point

2,3,4

1,3,4

1,2,3

1,2,4

Correct
That's correct. In Ethereum, hashing functions are used for generating account addresses, digital signatures, transaction hash, state hash, receipt hash, and block header hash.

8.

Question 8
What is the purpose of using a digital signature?

1 / 1 point

It supports user authentication

It supports both user authentication and integrity of messages

None of the above.

It supports the integrity of messages

Correct
That’s correct. A valid digital signature gives a recipient reason to believe that the message was created by a known sender (authentication), that the sender cannot deny having sent the message, and that the message was not altered in transit (integrity).

9.

Question 9
Encryption of a message provides ____.

1 / 1 point

authentication

integrity

nonrepudiation

security

Correct
Correct.

10.

Question 10
A public key is derived from the ____.

1 / 1 point

hash of the first transaction by the account

genesis block hash

private Key

a different public key

Correct
Correct!

Week 4

1.
Question 1
Which one of the following is correct?

1 / 1 point

A secure blockchain is a single chain in an inconsistent state.

Neither timestamp nor nonce can be verified.

Once a consensus is met, a new block is added to the chain.

There is only one, single criteria measured to perform validation.

Correct
Correct!

2.
Question 2
True or False? Proof of work is an agreed upon method by which the creation of a new block is achieved in the Bitcoin blockchain.

1 / 1 point

False

True

Correct
Correct! Proof of Work is the consensus protocol used by Bitcoin Blockchain.

3.

Question 3
Trust in _____ is the ability to handle natural exceptional situations such as a chain split and double spending.

1 / 1 point

robustness

mining

Proof of Work

smart contracts

Correct
Correct!

4.

Question 4
Select the statement with the **INCORRECT** ending to the sentence "Forks are mechanisms that _____"

1 / 1 point

Reduce the robustness of the blockchain framework.

Manage issues

Build credibility.

Implement planned improvements

Correct
Correct!