

# Blockchain Design Principles

LATEST SUBMISSION GRADE

100%

1. Satoshi Nakamoto's original 2008 bitcoin white paper:

1 / 1 point

- ☐ was about creating a second generation of the internet
- ☐ sought to change civilization and reinvent business
- ☒ was written about a specific cryptocurrency, but implicitly described broader blockchain design principles
- ☐ All of the above

 Correct

2. What is the *double-spend problem*?

1 / 1 point

- ☐ A doubling in the amount of time spent waiting for a settlement to clear using traditional payment methods compared to blockchain-based payments.
- ☐ The idea that when making a purchase, a consumer must spend double the value of an item when paying in cryptocurrency compared to fiat currency, regardless of current exchange rates.
- ☒ A form of fraud in which the same unit of currency is spent in more than one transaction.
- ☐ A system of accounting in which each financial transaction is recorded using two different entries (i.e. a debit and a credit), and is prone to human error and dishonest manipulation.

 Correct

3. How is *integrity* achieved in a blockchain network?

1 / 1 point

- ☐ The integrity of a blockchain network relies on humans who choose to do the right thing.
- ☐ Trusted third parties verify people's identities and vouch for their reputations.
- ☒ Consensus mechanisms, such as *proof of work* or *proof of stake*, allow a securely distributed group of peers to confirm transactions and achieve network consensus.

- ☐ There are currently no means of achieving integrity within a blockchain network.

✓ Correct

4. What is the main benefit of distributing power across a peer-to-peer network?

1 / 1 point

- ☐ The actors in a peer-to-peer network are more trustworthy than those in a centralized system.
- ☒ No single party or central authority can shut the system down.
- ☐ Large-scale changes to the network protocol can be implemented easily.
- ☐ The decision-making process is much more efficient in a peer-to-peer network than in a centralized system.

✓ Correct

5. Which of the following is true regarding the incentive structures of a blockchain? Select all that apply.

1 / 1 point

- ☒ Incentives are what encourage network participants to cooperate and create the value that will ensure the success of the blockchain.

✓ Correct

- ☐ The incentive structures of a blockchain have little bearing on the security of the network.
- ☒ Paradoxically, acting in one's own self-interests benefits the peer-to-peer network.

✓ Correct

- ☒ On a blockchain, there is no economic benefit to performing a Sybil attack.

✓ Correct

6. Which of the following refers to an advanced form of asymmetric cryptography wherein users get two keys: One for encryption and one for decryption?

1 / 1 point

- ☒ PKI
- ☐ SHA-256
- ☐ ERC-20
- ☐ ICO

**Correct**

7. How is *privacy* established in a public blockchain, given that it can be viewed by anyone at any time?

**1 / 1 point**

- ☐ There are currently no methods for establishing privacy on a public blockchain.
- ☐ Users are only able to see transactions in which they were directly involved (e.g. as a sender or recipient).
- ☐ Internet Service Providers do not track the IP addresses of devices that are connected to a blockchain network.
- ☒ Parties are represented pseudonymously using public addresses; a single party can own multiple public addresses.

**Correct**

8. A blockchain can be designed to support higher levels of transparency, should all stakeholders agree to do so. The ideal situation for privacy vs. transparency would be:

**1 / 1 point**

- ☒ Privacy for individuals

**Correct**

- ☐ Transparency for individuals
- ☐ Privacy for organizations, institutions, and public officials
- ☒ Transparency for organizations, institutions, and public officials

**Correct**

9. How could blockchain technology benefit an artist?

1 / 1 point

- ☐ With blockchain, an artist could register a *hash* of his/her creative work, thereby providing an immutable, time-stamped proof of existence, authorship, and copyright ownership.
- ☐ With smart contracts, an artist could be paid directly from fans without multiple intermediaries taking a cut.
- ☐ With smart contracts, an artist could assign and automatically enforce customized usage rights for his/her work to another party.
- ☒ All of the above



Correct

10. In what sense do public blockchains support financial inclusion?

1 / 1 point

- ☐ Users do not require a birth certificate, home address, or proof of citizenship in order to join the network.
- ☐ There is no minimum account balance required to participate in the network.
- ☐ The infrastructure makes micropayments feasible, thereby lowering the barriers to investing, entrepreneurship, and participation in global trade.
- ☒ All of the above



Correct