

## NOC22-CS44: Blockchain and Its Applications

### Assignment 8

Correct choices are highlighted in **Yellow**. Give partial marks for partially correct answers.

1. Which of the following is an open, scalable consensus algorithm having low transaction throughput?

a. **PoW**

b. PoS

c. PBFT

d. PoL

**Hint :Refer to Lecture series**

2. Running a chaincode in hyperledger fabric internally involves the following steps even if all the steps are not explicitly done by the user in the latest versions.
- i. Instantiation of Chaincode of Channel
  - ii. Creation of Channel
  - iii. Configuring Orderer and Peer nodes
  - iv. Adding members to Channel
  - v. Installing chaincode on peers

**Which of the following sequence of steps is valid?**

a. ii, iv, iii, i

b. iv, iii, v, i

c. v, i, ii, iv

d. **iii, v, ii, iv, i**

3. Hyperledger Fabric only allows Proof of Work consensus to be plugged in to ensure a high degree of trustworthiness. True or False
- a. True
- b. **False**

**Hint: Hyperledger Fabric supports pluggable implementations of different components such as identity management, consensus algorithm etc to ensure confidentiality, resiliency and scalability.**

4. Traditional methods for centralized digital identity management do NOT have which of the following characteristics?

a. **Identity holder can easily decide with whom to share the identity and which part**

of it

- b. Identity theft can occur and remain undetected
  - c. Restricting components of identity to be revealed to different verifiers is difficult
  - d. An attacker can capture the presented identity
5. Which of the following statements is/are FALSE regarding PBFT and PoW?
- a. PoW can be executed over both public and private blockchain networks.
  - b. PBFT can be executed over a private blockchain network, but not chosen to be executed over a public blockchain network in general.
  - c. PBFT can be generally preferred to be executed for both public and private blockchain networks
  - d. PoW can be executed over a private blockchain network but can not be executed over a public blockchain network

**Hint: c,d**

6. Which of the following is/are true for Proof Of Work) PoW protocol
- a. Generally used in Open environment
  - b. Scalable
  - c. Transaction Per second (TPS) is low in general
  - d. All of the above

**Hint: Please refer to slides. PoW works in an open environment with lots of nodes, scalable and slow in comparison to closed environment protocols in general.**

7. PBFT has higher transaction throughput than PoW
- a. False
  - b. True

**Hint: PBFT works in closed environments and is faster.**

8. Which of the below statements is true?
- a. PoW is a non-randomized protocol
  - b. Pow can always ensure consensus finality
  - c. BFT protocols ensure total ordering of transactions
  - d. None of the above

**Hint: PoW is randomized and need not ensure finality. For details, please refer to the slide.**

9. BFT protocol ensures finality in general.
- a. False
  - b. True

**Detailed Solution: BFT protocols commit blocks based on transaction ordering and ensure finality. For details, please refer to the slide.**

10. Which of the following is/are true for scalable witness cosigning protocol?

- a. protect authorities and their clients from undetected misuse
- b. ensuring that every authoritative statement is validated
- c. It is used to sign a message by multiple authorities collectively
- d. none of the above

**Detailed Solution:** cosigning protocol supports collective signing and publicly logging them by witnesses. So all of the options are true. For details, please refer to the slides.