

Duration: 3hrs

Marks:80

N.B:(1) Question No 1 is Compulsory.

(2) Attempt any three questions out of the remaining five.

(3) All questions carry equal marks.

(4) Assume suitable data, if required and state it clearly.

- Q1. Attempt any four
- a. Explain the Proof of Stake and Proof-of-Work consensus algorithms 5
 - b. Discuss Truffle and the various truffle commands used during the development of Smart Contracts. 5
 - c. Enumerate the interoperability and scalability issues in Hyperledger Fabric. 5
 - d. What is forking in blockchain? Explain hard and soft forks with suitable examples. 5
 - e. Differentiate between Fungible and Non-fungible tokens. 5
- Q2. a. What is a private blockchain? Explain the distinct features and drawbacks of a private blockchain. Discuss any two examples of private blockchain. 10
- b. Discuss the different consensus algorithms applied in Hyperledger blockchain. 10
- Q3. a. Explain the role of certificate authority and Chain code in Hyperledger blockchain. 10
- b. How are ERC20 tokens helpful in blockchain applications? Explain the steps to create an ERC20 token. 10
- Q4 a. What is a genesis block? Explain the components of a block and block header of bitcoin in detail? 10
- b. Discuss the benefits and challenges of Blockchain technology to develop applications in the finance domain. 10
- Q5 a. Explain transactions and UTXO in bitcoin. How are fees calculated for a Bitcoin transaction. 10
- b. Explain different components of Ethereum in detail. 10
- Q6 Write short note on (any 2) 20
- a. Byzantine Generals' Problem.
 - b. ICO Launching Mechanism
 - c. Hyperledger umbrella projects
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