

(Time: 3 Hours)

(Total Marks: 80)

- N.B.:**
1. Question No. 1 is compulsory.
 2. Answer any three out of the remaining questions.
 3. Assume suitable data if necessary.
 4. Figures to the right indicate full marks.

- Q1. Attempt the following (Any 4):** (20)
- a. Explain the concept of UTXO model of Bitcoin.
 - b. Differentiate between hot and cold wallets
 - c. Explain mining pool and its difficulty.
 - d. Compare and contrast private and public blockchain.
 - e. List and explain various types of nodes used in ethereum.
- Q2. Attempt the following:**
- a. Explain the function of state machine replication. Explain with respect to crowd funding application. (10)
 - b. Compare BFT and PBFT Consensus in detail. (10)
- Q3. Attempt the following:**
- a. Compare the role of MSP and Fabric CA. Explain their role in Hyperledger blockchain. (10)
 - b. Explain ethereum architecture and workflow in detail. (10)
- Q4. Attempt the following:**
- a. List and explain the types of test networks used in ethereum. (10)
 - b. Explain different visibility specifier of functions in solidity with example. (10)
- Q5. Attempt the following:**
- a. What is transaction structure? Explain transaction life cycle in detail. (10)
 - b. Explain the role of address and address payable in solidity with example. (10)
- Q6. Write short notes on (Any 2):** (20)
- a. Consensus in Bitcoin
 - b. Hyperledger Fabric
 - c. Cryptography in Blockchain
 - d. Defi Architecture
