

(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. What is distributed ledger? Explain its need in the Blockchain.
- b. What is Bitcoin? Explain the role of hash cash.
- c. List and explain different types of accounts in ethereum.
- d. Explain the need of private blockchain.
- e. Differentiate between ERC20 and ERC721.

Q2. Attempt the following:

- a. What Merkle root tree. Explain Pectricia Merkle root in ethereum. (10)
- b. Explain the process of mining in detail. (10)

Q3. Attempt the following:

- a. Write a smart contract in solidity to explain various types of arrays. (10)
- b. Explain Hyperledger Fabric in detail. (10)

Q4. Attempt the following:

- a. Explain the benefits and limitation s of blockchain. (10)
- b. Describe the various types of consensus in blockchain. (10)

Q5. Attempt the following:

- a. Explain ethereum components in detail? (10)
- b. Explain Different types of cryptocurrencies in detail. (10)

Q6. Write short notes on (any 2): (20)

- a. Case study on any Blockchain platform
- b. Consensus in private blockchain
- c. Blockchain in Defi and Metaverse
