

Duration: 3Hours

[Max 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 CAP Theorem. 5
  - b. Explain Bitcoing Mning Process in details 5
  - c. Discuss Turing completeness EVM 5
  - d. Explain Certificate Authority role and working in Hyperledger. 5
  - e. Differentiate between PoW and PoS 5
- Q2.**
- a. Explain in Block in a Blockchain with terminologies as: Structure of a Block, Block Header Hash, Block Height, The Genesis Block, Linking Blocks in the Blockchain. 10
  - b. Explain in detail Bitcoin Node Types and its Roles 10
- Q3.**
- a. How to create an account on Metamask (Ethereum Wallet). List and explain different testnets for deployments. 10
  - b. Explain in detail Blockchain in IoT with real time applications, challenges in implementation and benefits with combining blockchain and IOT technologies. 10
- Q4**
- a. Describe the various components in Hyperledger Fabric. 10
  - b. Discuss Simplified Payment Verification (SPV) Nodes with its Privacy issue and solution. 10
- Q5**
- a. What is Cryptocurrency? List 5 cryptocurrencies based on blockchain Technology. Explain any two cryptocurrencies in detail. 10
  - b. Explain different components of Ethereum in detail. 10
- Q6** Write short note on (any 4) 20
- a. Byzantine Generals Problem Consensus Mechanism
  - b. UTXO
  - c. Transaction GAS
  - d. Hyperledger Blockchain Scalability Challenges
  - e. STO