Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 4053223

M.E. / M.Tech DEGREE EXAMINATIONS, NOV/ DEC 2024
Third Semester
Computer Science and Engineering
P23CSE19 - CRYPTOCURRENCY AND BLOCKCHAIN TECHNOLOGIES
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Define proof of stake (PoS).

2. What is a cryptographic hash function?

3. Justify the impact of hard forks on the blockchain community.

4. Illustrate the method to verify that a block of transactions has not been tampered with?

5. State How does Proof of Stake (PoS) reduce the energy consumption seen in Proof of Work (PoW)?

6. What role does a private key play in receiving Ethers?

7. How is Hyperledger different from public blockchain platforms like Ethereum?

8. What is the significance of import statements in Solidity?

9. Justify how can a healthcare provider use an MRMS to reduce medical errors.

10. How do Stablecoins differ from other Altcoins?

PART – B (5 x 16 = 80 Marks)

11. (a) As a Miner analyze when there is a scenario where a user wants to send 2 Ether to another user, Discuss the steps from the initiation of the transaction to its inclusion in a block. (16)

(OR)

(b) Explain the concept of a public key cryptosystem and how it differs from symmetric key cryptography with a suitable example. (16)

12. (a) Discuss in detail about the benefits of using Merkle Trees in distributed systems like blockchains. (16)

(OR)

(b) Analyze the impact of blockchain technology on the volatility of cryptocurrencies. What factors contribute to this volatility? (16)

13. (a) Discuss in detail about the implications of account security in Ethereum. List out the potential risks associated with managing Ethereum accounts, and also explain the suggestions to avoid these risks? (16)

(OR)

(b) Discuss in details about applying smart contracts in supply chain management and explain with suitable example to illustrate their benefits. (16)

14. (a) Describe the impact of Distributed Ledger Technology (DLT) on traditional financial systems and also the benefits, challenges of integrating DLT in banking and finance. (16)

(OR)

(b) Discuss in detail about the Solidity and how it can be used to create a decentralized application (DApp) with a suitable example and also the vital role of Solidity in its functionality. (16)

15. (a) Explain how IoT devices can implanted in blockchain technology for data sharing with suitable scenario where this integration would be advantageous. (16)

(OR)

(b) Explain the concept of blockchain technology. What are its key characteristics, and how do they differentiate it from traditional database systems? (16)

----- xxx -----