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Name: .....

**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(R), MAY 2024****Computer Science and Engineering****(2020 SCHEME)****Course Code : 20CST426****Course Name : Block Chain Technologies****Max. Marks : 100****Duration:3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Describe Elliptic Curve Cryptography.
2. Define Cryptography.
3. List out any six consensus algorithms used in the context of blockchain.
4. Compare centralized and decentralized systems.
5. Explain the different keys in Bitcoin.
6. Explain the variants of Proof of stake consensus algorithm.
7. How can Blockchain be used to accelerate the healthcare system?
8. Explain the design process of decentralized applications with diagrams
9. With neat diagram explain the concept of Ethereum world state.
10. Explain the concept of Gas in Ethereum. Explain how transaction cost can be calculated in an Ethereum blockchain network.

**PART B***(Answer one full question from each module, each question carries 14 marks)***MODULE I**

11. Illustrate the working of AES algorithm with the help of an example. 14

**OR**

12. a. Explain Distributed Hash Tables and show how data is stored and retrieved from DHT. 8  
b. Explain Merkle Trees and list out the benefits of using them. 6

**MODULE II**

13. Discuss the merits and demerits of using blockchain technology. 14

**OR**

14. a. Illustrate and explain how blockchain works using a neat diagram. 9  
b. Explain the different elements of blockchain. 5

**MODULE III**

15. Highlight different types of Fault Tolerant Consensus Algorithms and Illustrate the working of Paxos distributed consensus algorithm. 14

**OR**

16. What is the role of a Bitcoin miner? Explain the mining algorithm used in Bitcoin with the help of a flowchart. 14

**MODULE IV**

17. What are smart contracts? Explain how smart contracts can be used for enforcing agreements between parties in the form of business logic with an example. 14

**OR**

18. a) Explain how artificial intelligence can be integrated with Blockchain technology. 8  
b) What are the advantages of using Blockchain technology with AI? 6

**MODULE V**

19. Using Solidity language, create a smart contract for Blind Auction. 14

**OR**

20. Explain the concept of 'functions' in Solidity. How are errors being handled in Solidity? 14

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