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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 21CS7PEBLC **Max Marks: 100**
Course: Block Chain **Date: 28.02.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - I

1	a)	Discuss Byzantine fault tolerance. How is it relevant to blockchain?	**08**
	b)	Explain the three properties of cryptographic hash functions.	**06**
	c)	Explain how ASIC resistance effect digital currencies.	**06**

UNIT - II

2	a)	Illustrate Merkle tree visualization with a neat diagram and explain it's relevance to blockchain.	**10**
	b)	Bring out the differences between hard fork versus soft fork and illustrate the same with an example.	**10**

OR

3	a)	Compare and list the differences as well as the similarities between private and public blockchain.	**06**
	b)	Illustrate with an example the complete lifecycle of a transaction in a blockchain application.	**08**
	c)	Discuss the advantages of blockchain over the conventional distributed systems.	**06**

UNIT - III

4	a)	Illustrate the execution environment of Ethereum Virtual Machine (EVM) with a neat diagram.	**10**
	b)	Design a smart contract for the following scenario: A bidding application where everyone can send their bids during a bidding period. The bids include sending money / ether in order to bind the bidders to their bid. If the highest bid is raised, the previously highest bidder gets his/her money back.	**10**

OR

5	a)	Design a smart contract illustrating different methods to send ether from one account to another in solidity.	**10**
	b)	Explain any one vulnerability and demonstrate with an example one attack on the vulnerability.	**10**

UNIT - IV

6	a)	Illustrate with a neat diagram the process of consensus mechanism using GHOST.	**08**
	b)	Discuss the applications of blockchain in the field of medical record management system.	**06**
	c)	Illustrate the most common ways of attacking user wallets.	**06**

UNIT - V

7	a)	Explain Nakamoto consensus where the leader is elected and proposes a final value.	**08**
	b)	Differentiate between Proof of Work and Proof of Stake.	**06**
	c)	Illustrate Sybil attack on any two blockchain networks.	**06**

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