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

Autonomous Institute Affiliated to VTU

September / October 2024 Supplementary Examinations

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

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

			UNIT - I	CO	PO	Marks
1	a)		Describe Turing Complete with suitable example. Analyze any two blockchain applications which 'is' and 'not' Turing Complete.	CO2	PO2	**08**
	b)		Describe the scheme for digital signatures.	CO1	PO1	**06**
	c)		Explain how ASIC resistance effect digital currencies.	CO2	PO2	**06**
			UNIT - II			
2	a)		Describe the transaction's lifecycle in the blockchain application.	CO1	PO1	**10**
	b)		Illustrate Merkle tree visualization with a neat diagram and explain it's relevance to Blockchain.	CO1	PO1	**10**
			OR			
3	a)		Examine and contrast the blockchain's notions of soft and hard forks, as well as the effects they may have on the network.	CO2	PO2	**06**
	b)		Discuss the advantages of blockchain over the conventional distributed systems.	CO1	PO1	**06**
	c)		Discuss the concept of anonymity in blockchain and its implications for transactions on the network.	CO1	PO1	**08**
			UNIT - III			
4	a)		Discuss any two vulnerabilities in smart contracts and attacks on it with an example.	CO1	PO1	**10**
	b)		Illustrate the execution environment of Ethereum Virtual Machine (EVM) with a neat diagram.	CO1	PO1	**10**
			OR			
5	a)		Explain the block header and Ethereum state tire architecture with a neat diagram.	CO1	PO1	**10**
	b)		Design a smart contract for the following scenario: A charity auction platform where participants can submit their	CO3	PO3	**10**

			donations during a specified auction period. Each donation serves as a bid to win a featured item or experience. If a higher donation is submitted before the auction ends, the previous highest donor receives a refund of their donation. This encourages competitive giving and ensures that the charity benefits from the highest possible donations for their cause.			
			UNIT - IV			
6	a)		Discuss the applications of Blockchain in the field of Medical Record Management System and IoT.	*CO2*	*PO2*	**06**
	b)		Discuss any two altcoins in detail.	*CO1*	*PO1*	**06**
	c)		Illustrate with a neat diagram the process of consensus mechanism using GHOST.	*CO2*	*PO2*	**08**
			UNIT - V			
7	a)		Differentiate between Proof of Work and Proof of Stake.	*CO2*	*PO2*	**08**
	b)		In distributed consensus, explain the Nakamoto consensus.	*CO1*	*PO1*	**06**
	c)		Illustrate Sybil attack on any two blockchain networks.	*CO1*	*PO1*	**06**

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