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

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main 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.

				CO	PO	Marks
			UNIT - I	*CO*	*PO*	**Marks**
1	a)		Describe Turing Complete with suitable example. Analyze any two blockchain applications which '**is**' and '**not**' Turing Complete.	*CO1*	*PO1*	**8**
	b)		Discuss Byzantine general problem and Byzantine fault tolerance in block chain?	*CO1*	*PO1*	**8**
	c)		Describe the scheme for digital signatures.	*CO1*	*PO1*	**4**
			UNIT - II			
2	a)		Describe the transaction's lifecycle in the blockchain application.	*CO1*	*PO1*	**8**
	b)		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*	**4**
	c)		Discuss the concept of anonymity in blockchain and its implications for transactions on the network.	*CO1*	*PO1*	**8**
			OR			
3	a)		Explain mining mechanism in blockchain technology.	*CO1*	*PO1*	**4**
	b)		Explain the blockchain's structure with a clean diagram.	*CO1*	*PO1*	**6**
	c)		Demonstrate with a neat diagram Merkle tree visualization and explain it's relevance to Blockchain.	*CO3*	*PO3*	**10**
			UNIT - III			
4	a)		Use an example to talk about Ethereum wallet. Describe how to build a wallet, the various Ethereum networks that are accessible, how to use a wallet, and how to view every transaction.	*CO3*	*PO3*	**10**
	b)		Explain the block header and Ethereum state trie architecture with a clear diagram.	*CO3*	*PO3*	**10**

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.

			OR			
5	a)		What is the syntax of functions and contract definition in solidity? Describe the collection of all keywords that determine the function's visibility and have an impact on its behavior.	CO2	PO2	**10**
	b)		Describe all the preset global variables (objects) that are accessible during the execution of a contract in the EVM.	CO1	PO1	**10**
			UNIT - IV			
6	a)		Discuss the various attacks on blockchain.	CO2	PO1	**10**
	b)		Describe how a blockchain DNS operates, how it addresses issues with existing DNS systems and name three well-known blockchain DNS applications.	CO2	PO2	**10**
			UNIT - V			
7	a)		Discuss difficult level in mining and show how it is calculated.	CO1	PO1	**10**
	b)		What are consensus mechanisms give an example.	CO1	PO1	**5**
	c)		In distributed consensus, explain the Nakamoto consensus.	CO1	PO1	**5**

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