

**VIT**Vellore Institute of Technology
(Declared as a University under section 3 of UGC Act, 1956)

REG.NO.: 22BUE3146

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: E2+TE2

Programme Name & Branch : B.Tech. CSE/BTECH - CSE with BlockChain Technology
Course Code and Course Name : BCSE326L Blockchain Architecture Design
Faculty Name : Dr K Santhi
Class Number : VL2024250502128
Date of Examination : 31-Jan-2025
Exam Duration : 90 minutes
Maximum Marks: 50

General instruction(s):

- Answer All Questions
- Course Outcomes
 1. Understand the requirements of the fundamentals of Blockchain.
 2. Identify and apply the concept of Bitcoin.
 3. Recognize the underlying technology of transactions, blocks and proof-of-work

Q. No	Question	M	CO	BL
1.	What are the layers of a blockchain network, and how does each layer contribute to data processing, security, and system integrity?	10	1	1
2.	In blockchain governance, how can participant privacy be preserved while maintaining transparency in decision-making processes?	10	1	2
3.	Imagine you are working as a software developer for a logistics company that wants to implement a blockchain-based system to track shipments. The company has faced issues in the past with tampered delivery logs, leading to disputes between suppliers and customers. Your task is to evaluate the suitability of blockchain for this system. How would blockchain ensure that the shipment logs are tamper-evident? Explain using a scenario where a dishonest employee tries to alter the delivery record. Justify your answer with diagrams illustrating the flow of blocks, cryptographic hashes, and consensus mechanisms.	10	2	2
4.	a) Illustrate how transactions are aggregated into blocks during the mining process and explain why this step is crucial for blockchain functionality.	5	2	2
	b) Explain how the mining process ensures the security and integrity of transactions, including those signed using a hardware wallet.	5		
5.	A startup is building a crowdfunding platform where project creators can raise funds for their ideas. The platform uses smart contracts on the Ethereum blockchain to manage the crowdfunding process. The smart contract ensures that funds are released to the project creator only if the total contributions reach the target amount by a specified deadline. If the target is not met, the funds are refunded to the contributors automatically. Explain how the smart contract ensures that funds are released only when the target amount is reached within the specified deadline.	10	3	3
