Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 17 – 12- 2025 **Time:** 01:00pm – 04:00pm

School: SOCSE	**Program:** B. Tech	
Course Code: CBC2502	**Course Name:** Distributed Ledger Technologies	
Semester: V	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	46	44	46	44	-

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **10Q x 2M=20M**

1.	Define Distributed Ledger Technologies. List the features of Distributed Ledger Technologies.	**2 Marks**	**L1**	**CO1**
2.	Explain the structure of a Merkle tree with the help of a diagram.	**2 Marks**	**L2**	**CO1**
3.	Define Hash function and give examples of hash used in block chain.	**2 Marks**	**L1**	**CO1**
4.	How do Permissioned and Permissionless Distributed Ledger Technologies differ? Explain with suitable examples.	**2 Marks**	**L2**	**CO2**
5.	Explain the difference between Proof of Work (PoW) and Proof of Stake (PoS) in blockchain.	**2 Marks**	**L2**	**CO2**
6.	Define Smart Contract and types of Smart contract.	**2 Marks**	**L1**	**CO3**
7.	List the different Hyperledger Frameworks & Tools.	**2 Marks**	**L2**	**CO3**
8.	Difference between centralized oracle and decentralized oracle.	**2 Marks**	**L2**	**CO3**
9.	Explain the Role of Supply chain management in DLT.	**2 Marks**	**L2**	**CO4**
10.	Define Sybil attacks in blockchain	**2 Marks**	**L1**	**CO4**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Apply your knowledge to illustrate a Block with its features and types, and demonstrate the Merkle tree structure with an example.	**20 Marks**	**L3**	**CO1**
		Or			
12.	**a.**	Demonstrate your understanding of Distributed Ledger Technologies (DLT) by illustrating its features and types with suitable real-world examples.	**20 Marks**	**L3**	**CO1**
13.	**a.**	Describe how Proof of Stake (PoS), Delegated Proof of Stake (DPoS), and Practical Byzantine Fault Tolerance (PBFT) consensus algorithms select a miner for the next block generation.	**20 Marks**	**L4**	**CO2**
		Or			
14.	**a.**	How do Proof of Work (PoW), Proof of Burn (PoB), and Proof of Elapsed Time (PoET) consensus algorithms function to select a miner for the next block generation? Explain with suitable interpretation.	**20 Marks**	**L4**	**CO2**
15.	**a.**	Explain smart contract, List the features and types of smart contract, and how it works in Ethereum block architecture. write simple smart contract using solidity program.	**20 Marks**	**L3**	**CO3**
		Or			
16.	**a.**	Apply your knowledge to illustrate how a Blockchain Oracle functions in integrating real-world data into smart contracts, and demonstrate its working with suitable real-world examples.	**20 Marks**	**L3**	**CO3**
17.	**a.**	Analyze how Distributed Ledger Technology (DLT) is applied across various domains, and critically examine its impact, benefits, and challenges in healthcare management and bio-medical research	**20 Marks**	**L4**	**CO4**
		Or			
18.	**a.**	Discuss the case studies of applications in DLT in: IBM Food Trust, TradeLens, Digital Voting.	**20 Marks**	**L4**	**CO4**