PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 23-12-2025   **Time:** 09:30am – 12:30pm

School: SOCSE	Program: B.Tech	
Course Code: CBC2000	Course Name: Foundations of Blockchain Technology	
Semester: III	Max Marks: 100	Weightage: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	24	26	26	24	

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.	Outline the evaluation of blockchain from Bitcoin to Web3.	2 Marks	L2	CO1
2.	List out the types of blockchain.	2 Marks	L2	CO1
3.	What is meant by collision resistance in hash functions?	2 Marks	L1	CO2
4.	Differentiate between public key and private key.	2 Marks	L2	CO2
5.	How does Proof-of-membership work?	2 Marks	L2	CO2
6.	How does consensus mechanism work?	2 Marks	L2	CO3
7.	What is the purpose of locking coins in PoS?	2 Marks	L1	CO3
8.	Why is PBFT not suitable for public blockchains?	2 Marks	L1	CO3
9.	State one key difference between permissioned and permissionless blockchains.	2 Marks	L2	CO4
10.	What is a smart contract?	2 Marks	L1	CO4

Part B

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

11.	a.	Summarize the evolution of blockchain technology from early concepts to recent advancements.	**20 Marks**	**L2**	**CO1**
		Or			
12.	a.	Illustrate the structure of blockchain with a neat diagram and also explain the steps involved in blockchain operations.	**20 Marks**	**L2**	**CO1**

13.	a.	Explain the structure and working of a Merkle tree in blockchain. How does it improve efficiency of verifying transactions?	**20 Marks**	**L2**	**CO2**
		Or			
14.	a.	Explain the working of digital signatures in blockchain with a neat diagram showing signing and verification process.	**20 Marks**	**L2**	**CO2**

15.	a.	Explain the working principle of PoW along with its merits and demerits.	**20 Marks**	**L2**	**CO3**
		Or			
16.	a.	Describe in detail the voting process and delegate replacement mechanism in DPoS and also mention its advantages and disadvantages.	**20 Marks**	**L2**	**CO3**

17.	a.	What is Hyperledger Fabric? Describe the transaction flow in Hyperledger Fabric.	**20 Marks**	**L2**	**CO4**
		Or			
18.	a.	Explain the advantages and challenges of using blockchain in healthcare data management.	**20 Marks**	**L2**	**CO4**