

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular/Supplementary Winter Examination – 2024

Course: B.Tech Branch: Computer Engineering/Computer Science & Engg

Subject Code & Name: BTCOE704C - Blockchain Technology Semester: VII

Max Marks: 60

Date: 12/02/2025

Duration: 3 Hr.

Instructions to the Students:

1. Each question carries 12 marks.
2. Question No. 1 will be compulsory and include objective-type questions.
3. Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.
4. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
5. Use of non-programmable scientific calculators is allowed.
6. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
Q. 1 Objective type questions. (Compulsory Question)		12
1 Which of the following is not part of block header in Blockchain? a. Previous Block Hash b. Timestamp c. Merkle Root d. Next block's Merkle root	CO1	1
2 Considering Bitcoin, which of the following components help determine the difficulty of the mining algorithm? a. Transaction Count b. Nonce c. Timestamp d. Public Address	CO3	1
3 Which of the following properties ensure that all local copies in the Blockchain are updated and consistent? a. Privacy b. Consensus c. Security d. Authenticity	CO1	1
4 Which of the following is used to ensure consensus in a Permissionless Blockchain Environment? a. Proof of Work b. Paxos Consensus c. Byzantine Fault Tolerance d. RAFT Consensus	CO4	1
5 The anonymity of a user in Bitcoin is maintained using a. User's E-mail Address b. User's Private Key c. User's Public Key d. User's Contact No.	CO3	1
6 In distributed consensus, all the non-faulty individuals' decisions must be identical. This property is a. Termination b. Validity c. Integrity d. Agreement	CO1	1
7 In _____, mining a block depends on the number of Bitcoins belonging to miner. a. PoW b. PoS c. PoB d. PoET	CO4	1

8	Which of the following is true in case of a Permissioned Blockchain network a. No need of consensus b. Users are known apriori c. The network is open d. Used for cryptocurrency	CO5	1
9	In a Bitcoin network, if difficulty is 54 with the last 2016 blocks mined in 12 days, next difficulty is a. 60 b. 63 c. 66 d. 70	CO3	1
10	You are planning to deploy a blockchain solution for your company. For deciding the proper business logic and the transaction format, you need: a. Blockchain Architect b. Blockchain Developer c. Blockchain Operator d. Blockchain User	CO6	1
11	A view change operation initiated in PBFT when a. Primary Fails b. Secondary Fails c. Both a & b d. After a timeout	CO5	1
12	The cryptocurrency used by Ripple network for cross border payments is a. Bitcoin b. Corda c. Lumen d. XRP	CO6	1
Q. 2 Solve the following.			12
A)	Draw and explain layered architecture of Blockchain system.	CO1	6
B)	Write a short note on the following: i) Markle Tree ii) Digital Signature	CO2	6
Q.3 Solve the following.			12
A)	What is Bitcoin Mining and How Does Bitcoin Mining Work?	CO3	6
B)	Write the difference between Proof of Work and Proof of Stake.	CO4	6
Q. 4 Solve Any Two of the following.			12
A)	Explain design issues for permissioned Blockchain.	CO5	6
B)	Explain Paxos algorithm in detail.	CO5	6
C)	Compare permissioned blockchain with permissionless blockchain?	CO4, CO5	6
Q.5 Solve Any Two of the following.			12
A)	What is KYC? Explain the Shared KYC model based on Blockchain.	CO6	6
B)	How does Blockchain benefit food security in future?	CO6	6
C)	Write an overview of supply chain financing using blockchain.	CO6	6

Q. 6 Solve Any Two of the following.		12
A) Explain Hyperledger Fabric and how does it work?	CO7	6
B) Explain writing smart contract using Ethereum?	CO7	6
C) What is the difference between Ripple and Corda?	CO6	6

*** End ***