

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: M.TECH.
BRANCH: CSE**

**SEMESTER : II
SESSION : SP/2025**

SUBJECT: CS643 BLOCKCHAIN TECHNOLOGY

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	What is the underlying principle of Blockchain Technology? Explain the working of blockchain with their main component?	[5]	CO CO1	BL BL1
Q.1(b)	How can you identify a block? Is it possible to remove a complete block from a blockchain network?	[5]	CO1	BL1BL2BL3
Q.2(a)	What is a consensus mechanism in blockchain? How is hash value generated in blockchain?	[5]	CO2	BL1BL2
Q.2(b)	How does a blockchain network prevent double-spending of digital assets? How Bit Coin use the consensus mechanism?	[5]	CO2	BL1BL2BL3
Q.3(a)	What is a Smart Contract? Do Smart Contracts have any legal standards?	[5]	CO3	BL1BL2
Q.3(b)	What is the importance of EVM in Ethereum? How does Hyperledger Fabric work?	[5]	CO3	BL1BL2
Q.4(a)	What do you mean by forks? What are the different types of forking?	[5]	CO4	BL1BL2
Q.4(b)	What do you understand by Zero-Knowledge Proof? Explain Zero-Knowledge Proofs for Anonymity Preservation.	[5]	CO4	BL1BL2BL3
Q.5(a)	What is the Lightning Network? What are the potential strategic benefits from blockchain applications?	[5]	CO5	BL1BL2
Q.5(b)	Explain Regulatory and Legal Challenges in Blockchain.	[5]	CO5	BL1BL2

:29/04/2025:E