

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

May-June 2026/ Nov – Dec 20_ July-Aug 20_ / Feb– March 20_
(B. Tech) Program: **Information Technology** Scheme I/II/IIB/III: **IIB**
Regular/Supplementary Examination: **LY** Semester: **VIII**

Course Code: **ITC801** and Course Name: **Blockchain and DLT**
Date of Exam: **19/05/26** Duration: 02.5 Hours Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	Explain the CAP theorem and its significance in Blockchain networks.		CO1	U
b)	Compare ERC20 and ERC721 Tokens		CO5	U
c)	How does the concept of Turing completeness apply to Ethereum and its smart contracts?		CO3	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Compare Permissioned and Permissionless Blockchains		CO4	U
b)	Explain the fundamental elements of a Blockchain system.		CO1	U
c)	Discuss the challenges of integrating blockchain in Agriculture.		CO6	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Apply the concept of double-spending in Bitcoin to illustrate how blockchain mechanisms prevent the same digital currency from being spent multiple times.		CO3	Ap
b)	Demonstrate how does RAFT influence the high-level transaction flow in Hyperledger Fabric blockchain also discuss the key features, advantages, and disadvantages of the Raft consensus protocol.		CO4	Ap
c)	Apply the concept of Non-Fungible Tokens (NFTs) to demonstrate how different types of assets can be represented and utilized across various real-world use cases.		CO2	Ap
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Demonstrate How does the Proof-of-Stake (PoS) mechanism secure the Bitcoin network		CO2	Ap
b)	Demonstrate phases involved in the lifecycle of a smart contract from creation to termination.		CO3	Ap
c)	Demonstrate how can IoT and blockchain be integrated into the medication supply chain to enhance the success rate of clinical trials, while improving transparency and traceability.		CO6	Ap
