

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

~~Nov-Dec 2025~~ Jan - Feb 2026

Supplementary (B. Tech Program: Information Technology Scheme: III
 Regular Examination: TY (Honours) Semester: V
 Course Code: HBCC501 and Course Name: Bit coin and Crypto currency
 Date of Exam: 05/12/2025 Duration: 02.5 Hours Max. Marks: 60

Instructions:

9/2/2026

- (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) | Write a short note on the Genesis Block and its significance. | | CO1 | U |
| b) | Discuss the concept of decentralized consensus in the Bitcoin network. | | CO2 | U |
| c) | Describe the role of Bloom filters in SPV nodes. | | CO5 | U |
| Q 2 | Solve any two questions out of three: (05 marks each) | 10 | | |
| a) | Explain the complete process of sending and receiving Bitcoin. | | CO3 | U |
| b) | Explain component of wallet Blockchain with example. | | CO4 | Ap |
| c) | Discuss any two cloud applications where blockchain technology is used. | | CO6 | U |
| Q.3 | Solve any two questions out of three. (10 marks each) | 20 | | |
| a) | Explain Merkle Trees in detail, including how they are constructed and used. | | CO1 | U |
| b) | Explain Pay-to-Public-Key-Hash (P2PKH) in detail. | | CO4 | U |
| c) | Discuss in detail the Bitcoin peer-to-peer network architecture, various types of nodes with example. | | CO5 | Ap |
| Q.4 | Solve any two questions out of three. (10 marks each) | 20 | | |
| a) | Explain decentralized consensus in Bitcoin and discuss in detail how Bitcoin solves the Byzantine Generals Problem. | | CO2 | U |
| b) | Discuss nondeterministic and deterministic wallets. Describe the purpose of Base58 and Base58Check encoding. | | CO4 | U |
| c) | Examine the role of blockchain in IoT. | | CO6 | U |
