

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

**Subject Code:3164501**

**Date:22-05-2026**

**Subject Name: Blockchain Platforms and Use Cases**

**Time:10:30 AM TO 01:00 PM**

**Total Marks:70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|     |                                                                                                                                                   | MARKS |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Q.1 | (a) How the limited scalability is an issue in Blockchain?                                                                                        | 03    |
|     | (b) How COSMOS handles following problems?<br>1. Sovereignty<br>2. Interoperability                                                               | 04    |
|     | (c) How many roles Hyperledger fabric has? Explain the flow of transactions with Hyperledger fabric.                                              | 07    |
| Q.2 | (a) What are the potential solutions for the scalability problem in Blockchain?                                                                   | 03    |
|     | (b) How Blockchain applications can address following challenges in Energy sector<br>1. Energy inefficiencies<br>2. Energy Inequality             | 04    |
|     | (c) Consider a finance application, how implementation differ in Ziliqa and Ripple platform?                                                      | 07    |
|     | OR                                                                                                                                                |       |
|     | (c) How Blockchain can help in health records management?                                                                                         | 07    |
| Q.3 | (a) Is “Multi Signature” a challenge in Blockchain? How it is managed?                                                                            | 03    |
|     | (b) How Hyperledger manages concurrency control?                                                                                                  | 04    |
|     | (c) Explain following on IOTA Blockchain<br>1. Creating Transaction<br>2. Confirming Transaction<br>3. Transaction fees<br>4. Consensus mechanism | 07    |
|     | OR                                                                                                                                                |       |
| Q.3 | (a) Explain the role of composer in Hyperledger framework.                                                                                        | 03    |
|     | (b) How does Blockchain help in tackling trust issues in supply chain sector?                                                                     | 04    |
|     | (c) What is consensus protocol in Blockchain. What are the challenges in consensus mechanism in Blockchain?                                       | 07    |
| Q.4 | (a) What are the characteristics of permissioned Blockchain?                                                                                      | 03    |
|     | (b) How IOTA can be used in autonomous vehicles?                                                                                                  | 04    |
|     | (c) Which two groups of users form the Ripple network? How the payments are processed in Ripple.                                                  | 07    |

OR

- Q.4 (a) Explain the term Escrow with respect to Blockchain. 03  
(b) What is hashgraph used for? Is hashgraph is better than traditional Blockchain? 04  
(c) Consider the Hyperledger fabric and answer the following. 07  
1. How nodes are classified?  
2. How a node is authenticated?  
3. How consistency, availability and partition tolerance is achieved?

- Q.5 (a) Describe a case study in which integration of Artificial Intelligence and Blockchain can be used? 03  
(b) Explain the use of Wallet in Ziliqa. 04  
(c) How Blockchain can help by making smart power grids? Explain Energy Trading with Blockchain. 07

OR

- Q.5 (a) How IPFS(Interplanetary File System) ensures verifiability of data and Resilience of data? 03  
(b) What is TRON? How does it work? 04  
(c) Describe the characteristics of Augur decentralized prediction market platform. 07

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