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# PRESIDENCY UNIVERSITY

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Bengaluru

**Mid Term Examinations - October 2026**

**Date:** 06/10/2026 **Time:** 02:00 PM - 03:30 PM

**Course Code:** CBC2506 **Course Name:** Blockchain Architecture Design

**Semester:** Seventh Semester **Max. Marks:** 50 **Weightage:** 50%

| CO - Levels | CO1 | CO2 |
|---|---|---|
| Marks | 46 | 44 |

**PART A: Answer Following Questions. 10 M**

| Q.N. | Questions | M | CO | BT |
|---|---|---|---|---|
| 1 | Explain the term sybil attack. | 2 | CO1 | BT2 |
| 2 | Explain public-key cryptography. | 2 | CO1 | BT2 |
| 3 | Describe the merkle root. | 2 | CO1 | BT2 |
| 4 | Discuss the relevance of nonce in a block. | 2 | CO2 | BT2 |
| 5 | Summarize the key components involved in the functioning of a DApp and their interactions. | 2 | CO2 | BT2 |

**PART B : Answer Any 1 Following Questions. 10 M**

| Q.N. | Questions | M | CO | BT |
|---|---|---|---|---|
| 6 | Explain architectural view of a blockchain network. | 10 | CO1 | BT2 |
| 7 | Compare various classifications of Distributed Ledger Technology. | 10 | CO1 | BT2 |

**PART C: Answer Any 1 Following Questions. 10 M**

| Q.N. | Questions | M | CO | BT |
|---|---|---|---|---|
| 8 | Explain the hashing technique with an example of a hash algorithm. | 10 | CO1 | BT2 |
| 9 | Discuss the private key cryptography and explain steps involved in it. | 10 | CO1 | BT2 |

**PART D: Answer Any 1 Following Questions. 10 M**

| Q.N. | Questions | M | CO | BT |
|---|---|---|---|---|
| 10 | Examine a basic crash fault tolerant consensus algorithm and discuss how its design handles message loss and node crashes while maintaining consistency. | 10 | CO2 | BT4 |
| 11 | Compare the Paxos and Raft algorithms by analysing their message flows, role structures, and handling of leader failures, and evaluate which is more suitable for real-world systems. | 10 | CO2 | BT4 |

**PART E: Answer Any 1 Following Questions. 10 M**

| Q.N. | Questions | M | CO | BT |
|---|---|---|---|---|
| 12 | Analyse the various sequential steps to be followed in a BFT algorithm, explaining how each phase contributes to reaching consensus despite Byzantine faults. | 10 | CO2 | BT4 |

| | | | | |
|---|---|---|---|---|
| 13 | Analyse the various planes over which a block propagates in a blockchain-based network, explaining the role of each plane in block dissemination and synchronization. | 10 | CO2 | BT4 |