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| **Name:**  **Enrolment No:** | | |  | | | |
| Odd Semester Mid Term Examination, October 2023Faculty of Engineering, SCSEDepartment of Computer Science & Engineering **B.Tech. Computer Science & Engineering** | | | | | | |
| Course Code: CS4162 | | Course: Blockchain Technology | | | Semester: VII | |
| **Time: 1.5 hrs. Max. Marks: 30** | | | | | | |
| **Instructions: All questions are compulsory.**  **Missing data, if any, may be assumed suitably.**  **Calculator is not allowed.** | | | | | | |
| **SECTION A (Memory Based Questions)** | | | | | | |
| S.No. |  | | | **Marks** | | **CO** |
| Q A1 | "What are the intricate and multifaceted aspects that constitute the concept of 'Blocks' within the realm of Blockchain Technology, and how do these elements fundamentally shape the functioning and security of blockchain networks?" | | | 2 | | CO1 |
| Q A2 | A Merkle tree is used to efficiently verify the integrity of data within a block. It is true or false? | | | 2 | | CO2 |
| Q A3 | In what respect transactions grouped together within a block in a blockchain? | | | 2 | | CO1 |
| **SECTION B (Concept Based Questions)** | | | | | | |
| Q B1 | Demonstrate the fundamental purpose of cryptographic hash functions in the context of blockchain technology, and how do they contribute to the security and integrity of the blockchain ledger? | | | 4 | | CO2 |
| Q B2 | Apply the concept of a "51% attack" in blockchain consensus? How does it relate to the security of the network? | | | 4 | | CO2 |
| Q B3 | Relate Byzantine fault tolerant (BFT) algorithm work in blockchain, and why is it considered more robust than some other consensus mechanisms? | | | 4 | | CO3 |
| Q B4 | Show the concept of a "block reward" in the context of mining. How does it incentivize miners to participate in the network? | | | 4 | | CO3 |
| **SECTION-C (Analytical Based Questions)** | | | | | | |
| Q (C) | Analyze the potential cost savings of implementing blockchain-based electronic voting systems compared to traditional methods. Consider factors like infrastructure, maintenance, and auditing? | | | 8 | | CO1 |