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| ADMISSION NUMBER |  |  |  |  |  |  |  |  |  |  |  |
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## School of Computing Science and Engineering

Bachelor of Technology in Computer Science and Engineering

Mid Term Examination - Nov 2023

Duration : 90 Minutes

Max Marks : 50

### Sem V - E2UU501B - Bitcoin and Crypto Currencies

General Instructions

*Answer to the specific question asked*

*Draw neat, labelled diagrams wherever necessary*

*Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Develop a Python program that uses a hash function to verify the integrity of a file. K3 (6)
- 2) Create a hypothetical scenario where a digital signature is used to authenticate a transaction in a blockchain-based system. K3 (9)
- 3) If the current block reward for mining a new block on the Bitcoin network is 6.25 bitcoins and the current exchange rate is \$50,000 per bitcoin, how much is the block reward worth in USD? K4 (8)
- 4) Discuss the advantages and disadvantages of using decentralized exchanges (DEXs) compared to traditional centralized exchanges. K5 (15)
- 5) Discuss the challenges and potential solutions for improving the scalability of blockchain networks to support mass adoption in terms of transaction scalability and node scalability. K6 (12)