

Reg. No.: 2023E1107

Name : gbrahin AC



VIT

Vellore Institute of Technology

## Continuous Assessment Test CAT – II – October 2023

Programme	: B.Tech Specialization in Computer Science (Core)	Semester	: Fall 2023-2024
Course Title	: Blockchain and Cryptocurrency Technologies	Code	: CSE1006
		Class Nbr(s)	: CH2023240100188 CH2023240100190
Faculty(s)	: Dr. R. Prabhakaran & Dr. Prasad M	Slot	: E1+TE1
Time	: 1 ½ Hour	Max. Marks	: 50

Answer All questions

Q.No.	Sub. Sec.	Question Description	Marks
1.	✓	Assume that you are providing a detailed walkthrough of a standard Bitcoin transaction to someone who has little to no experience with cryptocurrencies. Please elucidate the primary phases and procedures encompassing a typical Bitcoin transaction, commencing with a user's decision to transfer Bitcoin to another user's wallet and culminating in the confirmation and recording of the transaction on the blockchain. Make sure to incorporate crucial terminology, steps, and concepts as you elucidate this process.	10
2.	✓	Consider you're leading a seminar for a group of technology enthusiasts eager to understand the intricacies of Bitcoin mining. Describe, step by step, the process by which miners validate transactions and add them to the blockchain. Elaborate on the critical role miners play in the Bitcoin network's security and consensus mechanism. Finally, clarify why the Bitcoin network relies on miners, and how their efforts contribute to the overall functioning and trustworthiness of the cryptocurrency.	10
3.		Imagine you're hosting a workshop on the technical aspects of Bitcoin for an audience of software developers interested in blockchain technology. Explain Bitcoin Scripts, the scripting language used in Bitcoin transactions. Describe how Bitcoin Scripts work, including their role in creating custom transaction conditions. Illustrate with real-world examples how Bitcoin Scripts can be used for various purposes, such as multi-signature wallets or time-locked transactions, and discuss their significance in enhancing Bitcoin's functionality and security.	10
4.	✓	Assume that you are participating in a panel discussion on the future of cryptocurrencies at a blockchain technology conference. Elaborate to the audience the key limitations of the current Bitcoin protocol. Subsequently, discuss potential improvements or innovations that could address these limitations and enhance Bitcoin's performance, scalability, and overall utility. Provide real-world examples or analogies to help the audience grasp these concepts more effectively.	10
5.		Assume that Raja wants to send 1000 BTC to Uma, and he decides to make this transaction. As an expert in Bitcoin, Illustrate in detail the journey of this transaction, considering the involvement of mining pools, mining incentives, and potential strategies employed by miners to ensure its successful processing. Discuss the role of mining pools in confirming and adding transactions to the blockchain, the incentives motivating miners to include Raja's transaction, and any strategic considerations that miners might take into account when selecting which transactions to include in the blocks they mine.	10