17167

# BRAINWARE UNIVERSITY



## Term End Examination 2025-2026
## Programme – B.Sc.(ANCS)-Hons-2023
## Course Name – Blockchain and Cryptocurrency
## Course Code - BNC50203
## ( Semester V )

**Full Marks : 60** **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Relate the following options which correctly describe the blockchain technology.
- a) A digital asset used for secure transactions
- b) A centralized digital currency
- c) A digital currency backed by a government
- d) A digital currency not backed by any government or central authority

(ii) Relate the importance of Proof of Work and the Nonce in a Blockchain network.
- a) To enable secure digital transactions
- b) To enhance data privacy
- c) To store data
- d) To validate transactions

(iii) Which of the following elements are crucial components for interacting with blockchain technology?
- a) Transaction history
- b) Wallet balance
- c) Smart contract state
- d) All of these

(iv) Relate the purpose of Synchronizing the Blockchain across Peers in a Blockchain network.
- a) To secure transactions objectives
- b) To increase efficiency
- c) To control the rate of mining
- d) To enhance privacy

(v) How the Wallet Balance calculated in a Blockchain network?
- a) By adding up all the incoming transactions
- b) To create digital currencies
- c) By subtracting all the outgoing transactions
- d) By adding up all the incoming transactions and subtracting all the outgoing transactions

(vi) Administer that how does the grabbing of valid Transactions by the Miner Class enhance the efficiency of a Blockchain network.
- a) To encrypt the transaction data
- b) To provide validation for the block
- c) To mine new blocks
- d) To create a digital signature

(vii) Associate the Peer to Peer Server in the context of Blockchain network to enhance decentralization.

a) By running simulations with artificial data.
b) By running the blockchain in a test environment with real data.
c) By manually checking each transaction in the blockchain
d) By testing the blockchain's ability to handle large amounts of data.

(viii) How does the Public Key Endpoint in a Blockchain network facilitate secure transactions?
a) To initiate the Blockchain
b) To secure transactions
c) To validate transactions
d) To store transactions administration

(ix) What is a Transaction Pool in the context of a Blockchain?
a) A situation where a miner controls more than 51% of the mining power in a Blockchain network
b) A situation where a hacker takes control of more than 51% of the nodes in a Blockchain network
c) A situation where a group of miners control more than 51% of the mining power in a Blockchain network
d) A situation where a group of hackers take control of more than 51% of the nodes in a Blockchain network

(x) Associate the purpose of Genesis Block.
a) To secure transactions
b) To increase efficiency
c) To control the rate of mining
d) To enhance privacy granted to system users

(xi) What is the purpose of a smart contract in a blockchain project?
a) To facilitate transactions between different types of cryptocurrencies
b) To enable the creation of custom tokens on the blockchain
c) To automate the execution of contractual terms and conditions
d) FoTo verify the authenticity of the blockchain network



(xii) What is the purpose of Reward Transactions in a Blockchain network?
a) It determines the rate of mining
b) It affects the security of transactions
c) It affects the privacy of transactions
d) It affects the efficiency of transactions

(xiii) What is the significance of Wallets, Keys, and Transactions in a Blockchain network?
a) By verifying the accuracy of rewards
b) By reducing the risk of fraud
c) By improving the efficiency of the validation process
d) All of these

(xiv) SHA 256 Hash Function enhance the security of a Blockchain network?
a) By encrypting user data
b) By creating unique, irreversible hashes for blocks
c) By speeding up transaction processing
d) By reducing network latency.

(xv) Which of the following is not a step in the mining process?
a) Verifying transactions.
b) Solving a cryptographic puzzle.
c) Updating the mempool.
d) Broadcasting the block to the network.

## Group-B

(Short Answer Type Questions) 3 x 5=15

2. Interpret is the purpose of building a blockchain class in blockchain development. (3)
3. What is the role of miners in blockchain technology? (3)
4. How is the blockchain API used in blockchain development? (3)
5. How does Proof of Work (PoW) support blockchain security through mining? . (3)
6. Examine the characteristics that differentiate cryptocurrencies from traditional currencies, including decentralization, security, and anonymity. (3)

**OR**

Summarize the implications of using public-key cryptography in a decentralized blockchain network. (3)

## Group-C

(Long Answer Type Questions) 5 x 6=30

7. What is a Merkle tree, and how does it enhance efficiency in blockchain transactions? (5)
8. Discuss the steps to add a new block in a block chain. (5)
9. Explain the importance of having multiple miners validating transactions and creating blocks, and discuss how this decentralization enhances security and trust in the network. change in for simple bitcoin (5)
10. Assess 51% attack in Block chain network. (5)
11. Analyze decentralized finance (DeFi) applications, and how do they relate to cryptocurrencies. (5)
12. Analyze the concept of double spending in blockchain technology (5)

**OR**

Can you explain the process of mining new bitcoins and its role in verifying transactions on the blockchain network? (5)

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