



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(ANCS)-Hons-2022

Course Name – Block Chain & Cryptocurrency

Course Code - BNCSD502B

(Semester V)

Library
Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

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) What is the primary purpose of blockchain technology?
 - a) To create digital art
 - b) To store and transfer data securely
 - c) To design websites
 - d) To play video games
- (ii) If a company wants to implement a transparent voting system for its shareholders, relate the feature for which the blockchain would be most beneficial.
 - a) High speed of transactions
 - b) Decentralization and immutability
 - c) Low cost of maintenance
 - d) User-friendly interface
- (iii) Infer the reason for blockchain to be considered as secure.
 - a) Because it uses simple passwords
 - b) Due to its decentralized nature and cryptographic techniques
 - c) Because it stores data in one location
 - d) Because it has no vulnerabilities
- (iv) Which of the following best describes a "public blockchain"?
 - a) A blockchain where anyone can join and participate
 - b) A blockchain restricted to certain participants
 - c) A blockchain used only by governments
 - d) A blockchain that is not accessible to the public
- (v) Identify the system of adding new blocks to the blockchain.
 - a) By network administrators
 - b) Through a voting system
 - c) By solving complex mathematical problems
 - d) By a central server
- (vi) Relate the following property that do not belong to a secure cryptographic hash function.
 - a) Collision resistance
 - b) Pre-image resistance
 - c) Reversibility
 - d) Deterministic output

(vii) What is the primary purpose of a blockchain?

- a) To centralize data storage
- b) To record transactions in a decentralized manner
- c) To create private databases
- d) To encrypt data for secure communication

(viii) Apply a programming concept used to link blocks together in a blockchain.

- a) Arrays
- b) Linked lists
- c) Trees
- d) Graphs

(ix) Employ the idea of implementation of Difficulty Adjustment enhance the security of a Blockchain network.

- a) It is the first block in a Blockchain
- b) It is used to store data
- c) It is used to validate transactions
- d) It is used to encrypt data

(x) 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

(xi) Choose the term of SHA 256 Hash Function feature to enhance the security of a Blockchain network.

- a) By requiring miners to solve complex mathematical problems
- b) By allowing users to encrypt transactions
- c) By allowing miners to validate transactions
- d) By allowing users to decrypt transactions

(xii) Explain the test of Reward Transactions to enhance the security of a Blockchain network

- a) By controlling the rate of mining
- b) By reducing the risk of 51% attacks
- c) By increasing the complexity of mining algorithms
- d) All of these

(xiii) Examine the key features of Cryptocurrency.

- a) It enables decentralized control
- b) It enhances security
- c) It increases efficiency
- d) All of these

(xiv) Explain 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

(xv) What is Blockchain?

- a) It enhances security
- b) It enables easy transfer of digital currencies
- c) It ensures privacy
- d) All of these

Group-B

(Short Answer Type Questions)

3 x 5=15

2. What is cryptography and how does it relate to blockchain? (3)
3. Illustrate genesis block in blockchain technology giving examples. (3)
4. Explain the concept of wallets, keys and transactions in blockchain technology. (3)
5. Apply a nonce function to generate new blocks in a blockchain network. (3)
6. Explain the process of reward transactions in blockchain technology. (3)

OR

- Dissect the wallet balance calculation in blockchain technology. (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Analyze block header with a suitable example. (5)
8. What is Mining? Tell Mining in the context of Blockchain. (5)
9. Inspect the process of Replace-the-chain (RtC) in a Blockchain network and analyze the potential effects on the network's security and performance. (5)
10. State cryptocurrency along with its key features. (5)
11. Analyze Bitcoin as a decentralized digital currency. (5)
12. Justify the characteristics that differentiate cryptocurrencies from traditional currencies, including decentralization, security, and anonymity. (5)

OR

- Judge the wallets in the context of cryptocurrency. (5)
