

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2025
(Sixth Semester)**

Branch – COMPUTER TECHNOLOGY

MAJOR ELECTIVE COURSE - II: BLOCK CHAIN TECHNOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. What is the primary purpose of blockchain in Bitcoin?
(i) Centralized record-keeping (ii) Decentralized ledger for transactions
(iii) Encrypting user data for privacy (iv) Controlling supply of physical currency
2. What is a key benefit of decentralization in blockchain?
(i) Faster government regulations (ii) Increased cost of transactions
(iii) Reduced need for intermediaries (iv) Higher dependency on banks
3. Which of the following is NOT a feature of Hyperledger Fabric?
(i) Public and anonymous transactions (ii) Permissioned blockchain network
(iii) Smart contract support (iv) Modular architecture
4. What is "Ether" in the Ethereum network?
(i) A blockchain framework
(ii) A cryptocurrency used for transactions and smart contracts
(iii) A decentralized data storage system
(iv) A private blockchain network
5. What is a major scalability challenge in blockchain technology?
(i) Slow consensus mechanisms
(ii) High computational power requirements
(iii) Network congestion and limited transactions per second
(iv) All of the above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a. Discuss the different types of blockchain and their applications in real-world scenarios.
OR
b. Describe various platforms that support decentralization using blockchain.
- 7 a. Explain the role of digital keys and addresses in Bitcoin transactions. How do they ensure security?
OR
b. Explain the major limitations of Bitcoin and how alternative coins attempt to address these issues.
- 8 a. Explain the key components of the Ethereum ecosystem and their functions.
OR
b. Discuss Ethereum's scalability challenges and the supporting protocols designed to address them.

Cont...

- 9 a. Explain about web3 in detail.
OR
b. Explain the architecture and key features of Hyperledger Fabric.
- 10 a. Explain about the blockchain platforms like Ripple, Stellar and Quorum in detail.
OR
b. What are the main applications of blockchain in different industries, and how does it benefit them?

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a. Explain the history and evolution of blockchain technology, highlighting its impact on digital transactions.
OR
b. Describe the concept of full ecosystem decentralization using blockchain.
- 12 a. Compare Bitcoin with Namecoin, Litecoin, Primecoin, and Zcash.
OR
b. Explain the structure of Bitcoin transactions, including digital keys, addresses, and mining mechanisms.
- 13 a. Explain the key components of the Ethereum ecosystem and their roles in blockchain functionality.
OR
b. Discuss Ethereum's scalability and security challenges in detail.
- 14 a. Explain how Web3 help in deploying smart contracts.
OR
b. Describe the Hyperledger as a Protocol.
- 15 a. Discuss the role of blockchain platforms like Kadena, Ripple, Stellar, Rootstock, Quorum, and Tendermint in advancing blockchain technology.
OR
b. Explain the scalability challenges faced by blockchain networks and discuss potential solutions.

Z-Z-Z

END