

# CBCS SCHEME



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21CS734

**Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025**

## **Block Chain Technology**

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Define Block Chain. With the neat diagram explain the Network view of a block chain. (07 Marks)
- b. Explain the different types of block chain. (08 Marks)
- c. Mention the benefits and limitations of block chain. (05 Marks)

**OR**

- 2 a. Explain the methods that are used to achieve decentralization. (04 Marks)
- b. Describe the Decentralized organizations in block chain. (06 Marks)
- c. Define the following :  
i) Decentralization    ii) Centralized systems    iii) Distributed systems  
iv) Atomicity    v) Cap theorem. (10 Marks)

### Module-2

- 3 a. Discuss about the cryptographic hash functions and its properties. (10 Marks)
- b. Write a note on Merkle trees. (05 Marks)
- c. What is double-spending problem? How to overcome this problem in crypto currency? (05 Marks)

**OR**

- 4 a. Discuss about the distributed consensus protocol with an example. (07 Marks)
- b. Explain the incentive mechanisms used in Bitcoin. (06 Marks)
- c. Explain the three important properties of hash puzzles. (07 Marks)

### Module-3

- 5 a. Illustrate the concept on Bitcoin transactions long with its syntax. (07 Marks)
- b. Explain how to execute a script in a stack-based programming language. (06 Marks)
- c. Summarize the applications of Bitcoin scripts. (07 Marks)

**OR**

- 6 a. Explain hot and cold storage for Bitcoin along with its solutions, in detail. (10 Marks)
- b. Discuss about the payment service for Bitcoin in detail. Also explain its steps involved in Bitcoin Mines. (10 Marks)

### Module-4

- 7 a. Discuss the tasks involved in bitcoin miners. (10 Marks)
- b. Explain the mining incentives and strategies to be followed by miners. (10 Marks)

OR

- 8 a. Explain the functions of decentralized mixing in Bitcoin. (05 Marks)  
b. Discuss in detail how to De-anonymize Bitcoin. (10 Marks)  
c. Write a note on Zerocoin. (05 Marks)

**Module-5**

- 9 a. Define Smart Contract. Explain the properties of Ricardian contract Bowtie model with a neat diagram. (08 Marks)  
b. Explain Ethereum block chain with a state transition function. (06 Marks)  
c. Explain the types of accounts for ethereum. (06 Marks)

OR

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- 10 a. Write a note on precompiled contracts. (08 Marks)  
b. Explain EVM (Ethereum Virtual Machine) with a neat diagram. (08 Marks)  
c. Mention the various functions of the Iterator functions. (04 Marks)

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