

6E7193

Total No. of Questions : 22

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Roll No. :

6E7193

B.Tech. VI-Sem. (Main/Back) Exam. - 2025

**COMPUTER SCIENCE AND ENGINEERING
(CYBER SECURITY)**

6CCS4-06 / Block Chain and Cyber Security

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates :

Attempt all ten questions from Part-A, five questions out of seven questions from Part-B and three questions out of five questions from Part-C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

Use of following supporting material is permitted during examination.

(Mentioned in Form No. 205)

1.

2.

PART-A

[10x2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1. What are the key properties of a hash function in Blockchain?

Q.2. What is the role of the Merkle Patricia Tree in Blockchain?

- Q.3. What is an attack vector in Cybercrime?
- Q.4. What is the difference between a virus and a worm?
- Q.5. What are the different types of identity theft?
- Q.6. What is the difference between a stateless and stateful firewall?
- Q.7. What is nonce and how does it Work?
- Q.8. What is the role of Snort in intrusion detection?
- Q.9. What are the main challenges faced by blockchain technology?
- Q.10. What is a fork in Blockchain, and what are its types?

PART-B

[5x4=20]

(Analytical/Problem solving questions)

Attempt any five questions

- Q.1. Differentiate between public, private, and consortium Blockchains.
- Q.2. Analyze how digital signatures can prevent fraud in financial transactions using Blockchain. <https://www.rtuonline.com>
- Q.3. Describe the impact of transaction fees and gas limits on Blockchain transactions.
- Q.4. A hacker gains unauthorized access to a bank's server and transfers funds. Identify the type of cybercrime and the legal consequences under the IT Act 2000.
- Q.5. A company's database was attacked using an SQL injection. How would you analyze the attack and suggest countermeasures?
- Q.6. If a hacker gains access to a user's PII and uses it for fraudulent purposes, how can digital forensics help in tracking the attacker?
- Q.7. A hacker bypasses a company's Intrusion Detection System (IDS). What techniques might they have used, and how can the system improved to detect such attacks?

PART-C

[3x10=30]

(Descriptive/Analytical/Problem Solving/Design question)

Attempt any three questions

- Q.1. How Blockchain Technology works? Explain benefits of Blockchain Technology with different types of Tiers of Blockchain Technology.
- Q.2. Describe the role of game theory in Blockchain security, with examples of Nash Equilibrium and Prisoner's Dilemma.
- Q.3. Describe the key features of the Indian IT Act 2000 and analyze its impact on cyber security regulations in India.
- Q.4. Explain SQL injection in depth, providing an example of how an attacker can exploit a database vulnerability and ways to prevent it.
- Q.5. Analyze the effectiveness of Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS) in modern cyber security defense strategies.