PYQ Analysis of UNIT–1 (Blockchain Technology)

I analyzed both uploaded RGPV Blockchain Technology papers (May 2023 & June 2025) and extracted all questions related to **UNIT-1**.

✅ UNIT-1 SYLLABUS MATCHING

UNIT-1 Topics

✔ Introduction to Blockchain
✔ Public Ledger
✔ Bitcoin
✔ Smart Contracts
✔ Block Structure
✔ Transactions
✔ Distributed Consensus
✔ Public vs Private Blockchain
✔ Cryptocurrency Basics
✔ Permissioned Blockchain
✔ Security Aspects
✔ Hash Function
✔ Merkle Tree
✔ Digital Signature
✔ Public Key Cryptography

🔥 QUESTIONS ASKED FROM UNIT-1

📘 MAY 2023 PAPER ANALYSIS

1️⃣ Differentiate between public and private blockchain.

Topic

✔ Public vs Private Blockchain

Frequency

⭐ Repeated Important Question

Chances in Exam

🔥 Very High Probability

2️⃣ What is Cryptographic Hash Function? Write properties of hash function.

Topic

✔ Hash Function
✔ Properties of Hash Function

Frequency

⭐ Very Frequently Asked

Chances

🔥 Very High Probability

3️⃣ What is Merkle Tree? Explain the usage of Merkle Tree.

Topic

✔ Merkle Tree

Frequency

⭐ Very Important

Chances

🔥 Very High Probability

4️⃣ What is Bitcoin P2P Network and how transactions are processed?

Topic

✔ Bitcoin
✔ Transactions
✔ Distributed Network

Frequency

⭐ Very Important

Chances

🔥 Very High Probability

5️⃣ What is double spending problem and how is it prevented in blockchain?

Topic

✔ Blockchain Security

✔ Consensus

✔ Bitcoin Security

Frequency

⭐ Important Conceptual Question

Chances

🔥 High Probability

6️⃣ What is Permissioned Blockchain? Explain design issues.

Topic

✔ Permissioned Blockchain

Frequency

⭐ Medium Important

Chances

🔥 Medium Probability

7️⃣ Define Consensus. Explain distributed consensus in closed environment.

Topic

✔ Distributed Consensus

Frequency

⭐ Repeated Topic

Chances

🔥 Very High Probability

8️⃣ Write short note on:

- Public Key Cryptography

Topic

✔ Public Key Cryptography

Frequency

⭐ Important Short Note

Chances

🔥 High Probability

📘 JUNE 2025 PAPER ANALYSIS

1️⃣ Explain why Merkle Trees are important for blockchain.

Topic

✔ Merkle Tree

Frequency

⭐ Repeated Again

Chances

🔥 Extremely Important

2️⃣ Develop the steps which make essential characteristics of smart contract.

Topic

✔ Smart Contracts

Frequency

⭐ Important

Chances

🔥 Very High Probability

3️⃣ Differentiate Public Blockchain and Private Blockchain with example.

Topic

✔ Public vs Private Blockchain

Frequency

⭐ Repeated Again

Chances

🔥 Extremely Important

4️⃣ Draw and explain structure of block.

Topic

✔ Block Structure

✔ Block in Blockchain

Frequency

⭐ Important Diagram-Based Question

Chances

🔥 Very High Probability

5️⃣ Explain proof of Elapsed Time consensus algorithm.

Topic

✔ Consensus Algorithm

Frequency

⭐ Important

Chances

🔥 High Probability

6️⃣ Explain Bitcoin Script, the smart contract language of Bitcoin.

Topic

✔ Bitcoin

✔ Smart Contracts

Frequency

⭐ Medium Important

Chances

🔥 Medium Probability

7️⃣ Describe working with Consensus in Bitcoin in detail.

Topic

✔ Bitcoin Consensus
✔ Distributed Consensus

Frequency

⭐ Repeated Concept

Chances

🔥 Extremely Important

8️⃣ Explain Block Mining including different types of mining.

Topic

✔ Bitcoin
✔ Mining
✔ Consensus

Frequency

⭐ High Important

Chances

🔥 High Probability

📊 MOST REPEATED UNIT-1 QUESTIONS

Question	Frequency	Probability
Public vs Private Blockchain	Asked Multiple Times	🔥🔥🔥
Merkle Tree	Asked Multiple Times	🔥🔥🔥
Consensus Mechanism	Asked Multiple Times	🔥🔥🔥
Hash Function	Repeated	🔥🔥🔥
Bitcoin Working	Repeated	🔥🔥🔥
Smart Contracts	Repeated	🔥🔥
Permissioned Blockchain	Asked	🔥🔥
Public Key Cryptography	Asked	🔥🔥
Block Structure	Asked	🔥🔥🔥

🎯 MOST EXPECTED QUESTIONS FOR NEXT EXAM

⭐ VERY HIGH PROBABILITY

1. Explain Blockchain features and architecture.

2. Differentiate Public and Private Blockchain.

3. Explain Merkle Tree with diagram.

4. Explain Cryptographic Hash Function and its properties.

5. Explain Bitcoin working and transaction processing.

6. Explain Distributed Consensus in Blockchain.

7. Draw and explain structure of block in blockchain.

⭐ HIGH PROBABILITY

8. Explain Smart Contracts with applications.

9. Explain Block Mining and types of mining.

10. Explain Public Key Cryptography.

11. Explain Double Spending problem.

12. Explain Security aspects of Blockchain.

⭐ MEDIUM PROBABILITY

13. Explain Permissioned Blockchain.

14. Explain Bitcoin Script.

15. Explain Proof of Elapsed Time Consensus Algorithm.

📌 IMPORTANT DIAGRAMS TO PRACTICE

1️⃣ Blockchain Structure

```
Block 1 → Block 2 → Block 3
```

2️⃣ Merkle Tree

```
          Root Hash
         /         \
      H12           H34
     /  \          /  \
   H1   H2       H3   H4
```

3️⃣ Bitcoin Transaction Flow

```
User → Transaction → Verification → Block → Blockchain
```

4️⃣ Public Key Cryptography

```
Public Key → Encryption
Private Key → Decryption
```

5️⃣ Digital Signature

```
Private Key → Sign
Public Key → Verify
```

⚡ ONE-NIGHT UNIT-1 REVISION STRATEGY

Study First (MOST IMPORTANT)

✅ Public vs Private Blockchain
✅ Merkle Tree
✅ Hash Function
✅ Bitcoin Working
✅ Consensus

Then Study

✅ Smart Contracts
✅ Block Structure
✅ Mining
✅ Public Key Cryptography

Last Revision

✅ Definitions

✅ Diagrams

✅ Advantages

✅ Keywords

🧠 GOLDEN EXAM TRICK

Whenever writing blockchain answers:

```
Definition
↓
Diagram
↓
Working Steps
↓
Advantages
↓
Applications
↓
Conclusion
```

This structure helps score maximum marks in RGPV exams.