🎯 UNIT–3 PYQ ANALYSIS (Blockchain Technology)

I analyzed the uploaded RGPV Blockchain Technology PYQ papers and extracted all questions related to **UNIT–3**.

✅ UNIT–3 SYLLABUS TOPICS

✔ Permissioned Blockchain
✔ Permissioned Model and Use Cases
✔ Design Issues for Permissioned Blockchain
✔ Execute Contracts
✔ State Machine Replication
✔ Distributed Consensus in Closed Environment
✔ Paxos Algorithm
✔ RAFT Consensus
✔ Byzantine General Problem
✔ Byzantine Fault Tolerant (BFT) System
✔ Lamport-Shostak-Pease Algorithm
✔ BFT over Asynchronous Systems

📘 MAY 2023 PAPER — UNIT 3 QUESTIONS

1️⃣ What is Permissioned Blockchain? Explain its design issues.

Related Topics

✔ Permissioned Blockchain

✔ Design Issues

Importance

🔥 Extremely Important

⭐ Repeated Topic

2️⃣ Explain Distributed Consensus in Closed Environment.

Related Topics

✔ Consensus in Closed Environment

Importance

🔥 Very Important

3️⃣ Explain State Machine Replication.

Related Topics

✔ State Machine Replication

Importance

🔥 High Probability

4️⃣ Explain Paxos Algorithm with working.

Related Topics

✔ Paxos Algorithm

Importance

🔥 Extremely Important
⭐ Frequently Asked

5️⃣ Explain Byzantine General Problem.

Related Topics

✔ Byzantine General Problem

Importance

🔥 Extremely Important

6️⃣ What is Byzantine Fault Tolerant System?

Related Topics

✔ BFT System

Importance

🔥 Very Important

7️⃣ Explain Lamport-Shostak-Pease Algorithm.

Related Topics

✔ Lamport-Shostak-Pease Algorithm

Importance

🔥 High Probability

📘 JUNE 2025 PAPER — UNIT 3 QUESTIONS

1️⃣ Explain Permissioned Blockchain with use cases.

Related Topics

✔ Permissioned Blockchain

✔ Use Cases

Importance

🔥 Extremely Important

⭐ Repeated Again

2️⃣ Explain RAFT Consensus Algorithm.

Related Topics

✔ RAFT Consensus

Importance

🔥 Extremely Important

3️⃣ Differentiate Paxos and RAFT Algorithm.

Related Topics

✔ Paxos vs RAFT

Importance

🔥 Very High Probability

4️⃣ Explain Byzantine Fault Tolerant System in detail.

Related Topics

✔ BFT System

Importance

🔥 Very Important
⭐ Repeated

5️⃣ Explain BFT over Asynchronous Systems.

Related Topics

✔ Asynchronous BFT

Importance

🔥 Medium to High Probability

6️⃣ Explain execute contracts in permissioned blockchain.

Related Topics

✔ Execute Contracts
✔ Smart Contracts

Importance

🔥 Medium Probability

7️⃣ Explain consensus models used in permissioned blockchain.

Related Topics

✔ Paxos
✔ RAFT
✔ BFT
✔ Consensus Models

Importance

🔥 Very Important

📊 MOST REPEATED UNIT–3 QUESTIONS

Question	Frequency	Probability
Permissioned Blockchain	Multiple Times	🔥🔥🔥
Paxos Algorithm	Multiple Times	🔥🔥🔥
RAFT Consensus	Repeated	🔥🔥🔥
Byzantine General Problem	Repeated	🔥🔥🔥
BFT System	Multiple Times	🔥🔥🔥
Consensus in Closed Environment	Asked	🔥🔥
State Machine Replication	Asked	🔥🔥
Lamport Algorithm	Asked	🔥🔥
Asynchronous BFT	Asked	🔥
Execute Contracts	Asked	🔥

🎯 MOST EXPECTED QUESTIONS FOR NEXT EXAM

⭐ VERY HIGH PROBABILITY

1. Explain Permissioned Blockchain with advantages and use cases.

2. Explain Paxos Algorithm with neat diagram.

3. Explain RAFT Consensus Algorithm.

4. Explain Byzantine General Problem.

5. Explain Byzantine Fault Tolerant System.

⭐ HIGH PROBABILITY

6. Differentiate Paxos and RAFT Algorithm.

7. Explain State Machine Replication.

8. Explain Distributed Consensus in Closed Environment.

9. Explain Lamport-Shostak-Pease Algorithm.

⭐ MEDIUM PROBABILITY

10. Explain BFT over Asynchronous Systems.

11. Explain Execute Contracts.

12. Explain design issues in permissioned blockchain.

📌 IMPORTANT DIAGRAMS TO PRACTICE

1️⃣ Permissioned Blockchain

```
User Request
      ↓
Permission Check
      ↓
Authorized Access
      ↓
Blockchain Network
```

2️⃣ Paxos Algorithm

```
Proposer
    ↓
```

```
Acceptors
    ↓
Majority Agreement
    ↓
Learners
```

3️⃣ RAFT Consensus

```
        Leader
       /   |   \
Follower Follower Follower
```

4️⃣ Byzantine General Problem

```
General A ↔ General B ↔ General C
      (One may send false message)
```

5️⃣ BFT System

```
Correct Nodes + Faulty Nodes
          ↓
Majority Decision
          ↓
Correct Consensus
```

⚡ ONE-NIGHT UNIT–3 REVISION STRATEGY

🔥 FIRST PRIORITY (Must Study)

✅ Permissioned Blockchain
✅ Paxos Algorithm
✅ RAFT Consensus
✅ Byzantine General Problem
✅ BFT System

These are most repeated and highest scoring topics.

⭐ SECOND PRIORITY

✅ State Machine Replication
✅ Consensus in Closed Environment
✅ Design Issues

⭐ LAST PRIORITY

✅ Lamport-Shostak-Pease Algorithm
✅ BFT over Asynchronous Systems
✅ Execute Contracts

🧠 GOLDEN MEMORY TRICKS

Paxos

Proposal → Voting → Agreement

RAFT

Leader Controls Followers

Byzantine Problem

Some Nodes Lie → System Must Still Decide Correctly

BFT

Faulty Nodes Present → System Still Works

State Machine Replication

```
Same Input → Same Operation → Same Result
```

🎯 FINAL EXAM WRITING STRATEGY

For every Unit–3 answer write in this order:

```
Definition
↓
Need of Concept
↓
Diagram
↓
Working Steps
↓
Advantages
↓
Applications
↓
Conclusion
```

This structure helps:

✅ Increase answer length

✅ Improve presentation

✅ Get better marks in RGPV exams

✅ Fill 4–6 pages easily