

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**
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MAY 2023 PAPER — UNIT 3

QUESTIONS

1 **What is Permissioned Blockchain? Explain its design issues.**

Related Topics

- ✓ Permissioned Blockchain
- ✓ Design Issues

Importance

- 🔥 Extremely Important
 - ★ Repeated Topic
-

2 Explain Distributed Consensus in Closed Environment.

Related Topics

- ✓ Consensus in Closed Environment

Importance

- 🔥 Very Important
-

3 Explain State Machine Replication.

Related Topics

- ✓ State Machine Replication

Importance

- 🔥 High Probability
-

4 Explain Paxos Algorithm with working.

Related Topics

✓ Paxos Algorithm

Importance

🔥 Extremely Important

★ Frequently Asked

5 Explain Byzantine General Problem.

Related Topics

✓ Byzantine General Problem

Importance

🔥 Extremely Important

6 What is Byzantine Fault Tolerant System?

Related Topics

✓ BFT System

Importance

🔥 Very Important

7 Explain Lamport-Shostak-Pease Algorithm.

Related Topics

✓ Lamport-Shostak-Pease Algorithm

Importance

 High Probability

JUNE 2025 PAPER — UNIT 3



QUESTIONS

1 Explain Permissioned Blockchain with use cases.

Related Topics

- ✓ Permissioned Blockchain
- ✓ Use Cases

Importance

-  Extremely Important
 -  Repeated Again
-

2 Explain RAFT Consensus Algorithm.

Related Topics

- ✓ RAFT Consensus

Importance


-  Extremely Important
-

3 Differentiate Paxos and RAFT Algorithm.

Related Topics

- ✓ Paxos vs RAFT

Importance

 Very High Probability

4 Explain Byzantine Fault Tolerant System in detail.

Related Topics

✓ BFT System

Importance

 Very Important

 Repeated

5 Explain BFT over Asynchronous Systems.

Related Topics

✓ Asynchronous BFT

Importance

 Medium to High Probability

6 Explain execute contracts in permissioned blockchain.

Related Topics

✓ Execute Contracts

✓ Smart Contracts


Importance

7 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.**
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★ MEDIUM PROBABILITY

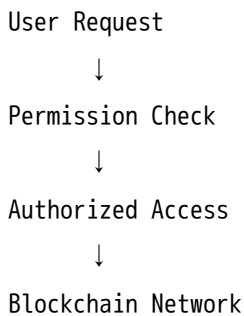
10. Explain BFT over Asynchronous Systems.

11. Explain Execute Contracts.

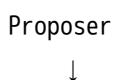
12. Explain design issues in permissioned blockchain.

📌 IMPORTANT DIAGRAMS TO PRACTICE

1 Permissioned Blockchain



2 Paxos Algorithm



Acceptors



Majority Agreement



Learners

3 RAFT Consensus

Leader



Follower Follower Follower

4 Byzantine General Problem

General A ↔ General B ↔ General C

(One may send false message)

5 BFT System

Correct Nodes + Faulty Nodes



Majority Decision



Correct Consensus

ONE-NIGHT UNIT-3 REVISION

STRATEGY

FIRST PRIORITY (Must Study)

- ✓ Permitted 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