

COA CS-404 Unit-5 PYQ Analysis (2022–2025)

Multiprocessors & Advanced Processor Organization

Syllabus

- Characteristics of Multiprocessor
 - Structure of Multiprocessor
 - Inter-Processor Arbitration
 - Inter-Processor Communication
 - Synchronization
 - Memory in Multiprocessor Systems
 - Pipelining
 - Vector Processing
 - Array Processing
 - RISC Architecture
 - CISC Architecture
 - Multicore Processors (Intel & AMD)
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Topic: Characteristics of Multiprocessor

Asked Questions

✓ June 2023

- Explain characteristics of multiprocessor systems.

✓ June 2025

- Discuss advantages of multiprocessor systems.

Probability



2026 Prediction

- Explain characteristics of multiprocessor systems.
 - Advantages and disadvantages of multiprocessors.
 - Explain shared memory multiprocessor system.
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Topic: Structure of Multiprocessor

Asked Questions

June 2024

- Explain structure of multiprocessor system with diagram.

December 2024

- Draw and explain multiprocessor architecture.

Probability



2026 Prediction

- Explain multiprocessor structure with neat diagram.
 - Explain components of a multiprocessor system.
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Topic: Inter-Processor Arbitration

Asked Questions

✓ November 2022

- Explain inter-processor arbitration techniques.

✓ June 2024

- Discuss bus arbitration in multiprocessor systems.

Probability



2026 Prediction

- Explain inter-processor arbitration.
 - Explain centralized and distributed arbitration.
 - Explain bus arbitration techniques.
-

Topic: Inter-Processor Communication

Asked Questions

✓ June 2022

- Explain inter-processor communication.

✓ June 2023

- Explain communication between processors.

✓ June 2025

- Explain inter-processor communication and synchronization.

Probability



2026 Prediction

- Explain inter-processor communication.
 - Methods of communication in multiprocessor systems.
 - Explain message passing and shared memory communication.
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Topic: Synchronization

Asked Questions

June 2023

- Explain synchronization in multiprocessor systems.

June 2025

- Explain synchronization techniques.

Probability



2026 Prediction

- Explain synchronization techniques.
 - Why is synchronization required?
 - Explain critical section problem in multiprocessors.
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Topic: Memory in Multiprocessor Systems

Asked Questions

June 2024

- Explain memory organization in multiprocessor systems.

✓ December 2024

- Discuss shared memory architecture.

Probability



2026 Prediction

- Explain memory organization in multiprocessors.
 - Explain shared memory and distributed memory systems.
 - Compare shared and distributed memory architecture.
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Topic: Pipelining

Asked Questions

✓ June 2022

- Explain pipelining with diagram.

✓ November 2022

- Explain instruction pipelining.

✓ June 2023

- Explain pipelining and its advantages.

✓ November 2023

- Explain pipelining hazards.

✓ June 2024

- Explain concept of pipelining.

✓ December 2024

- Discuss pipeline performance.

✓ June 2025

- Explain pipelining and speedup.

Probability



MOST REPEATED TOPIC OF UNIT-5

2026 Prediction

- Explain pipelining with diagram.
 - Explain pipeline hazards.
 - Advantages and disadvantages of pipelining.
 - Explain pipeline speedup.
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Topic: Vector Processing

Asked Questions

✓ June 2023

- Explain vector processing.

✓ June 2025

- Explain vector processors and applications.

Probability



2026 Prediction

- Explain vector processing.
 - Advantages of vector processors.
 - Compare scalar and vector processing.
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Topic: Array Processing

Asked Questions

November 2022

- Explain array processor.

June 2024

- Explain array processing architecture.

Probability



2026 Prediction

- Explain array processor with diagram.
 - Compare vector and array processing.
-

Topic: RISC and CISC

Asked Questions

June 2022

- Differentiate RISC and CISC.

✓ November 2022

- Compare RISC and CISC architectures.

✓ June 2023

- Explain RISC and CISC.

✓ June 2024

- Compare RISC and CISC processors.

✓ December 2024

- Explain features of RISC and CISC.

✓ June 2025

- Differentiate RISC and CISC architecture.

Probability



GUARANTEED TOPIC

2026 Prediction

- Differentiate RISC and CISC.
- Explain characteristics of RISC architecture.
- Explain characteristics of CISC architecture.
- Compare RISC and CISC in tabular form.

Topic: Multicore Processor (Intel & AMD)

Asked Questions

✓ June 2024

- Explain multicore processors.

✓ June 2025

- Discuss Intel and AMD multicore processors.

Probability



2026 Prediction

- Explain multicore processor architecture.
- Advantages of multicore processors.
- Compare Intel and AMD multicore processors.

Year-Wise PYQ Summary

Year	Questions Asked
June 2022	Inter-Processor Communication, Pipelining, RISC vs CISC
Nov 2022	Arbitration, Pipelining, Array Processor, RISC vs CISC
June 2023	Multiprocessor Characteristics, IPC, Synchronization, Pipelining, Vector Processing, RISC vs CISC
Nov 2023	Pipeline Hazards
June 2024	Multiprocessor Structure, Arbitration, Memory Organization, Pipelining, Array Processing, RISC vs CISC, Multicore
Dec 2024	Multiprocessor Structure, Memory Organization, Pipeline Performance, RISC vs CISC

June 2025

Multiprocessor Characteristics, IPC & Synchronization,
Pipelining, Vector Processing, RISC vs CISC, Intel & AMD
Multicore