

CS405 Operating Systems – Unit 3 PYQ Analysis (2022–2025)

Unit 3 Syllabus

CPU Scheduling

- Process Concept
- Scheduling Concepts
- Types of Schedulers
- Process State Diagram
- Scheduling Algorithms
- Algorithm Evaluation
- System Calls for Process Management
- Multiple Processor Scheduling
- Concept of Threads

Memory Management

- Partitioning
 - Swapping
 - Segmentation
 - Paging
 - Paged Segmentation
 - Comparison of Memory Management Techniques
 - Overlay
 - Dynamic Linking & Loading
 - Virtual Memory
 - Demand Paging
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Exact PYQs Related to Unit 3

Year	Question
June 2025	RR Algorithm Variant (Ready Queue Pointer Question)
June 2025	Optimal Page Replacement Numerical
Dec 2024	FCFS Scheduling Numerical
Dec 2024	Round Robin Scheduling Numerical
Dec 2024	Pre-emptive SJF Numerical
Dec 2024	Multilevel Feedback Queue Scheduling
June 2024	Benefits of mapping objects into Virtual Memory
June 2024	Overlay – Dynamic Linking and Loading
Nov 2023	Compare FCFS and SRTF Scheduling
Nov 2023	Process State and State Transition Diagram
Nov 2023	Explain Thread Control Block
Nov 2023	LRU, FIFO and Optimal Page Replacement Numerical
Nov 2023	Virtual Memory and Non-contiguous Storage Allocation
June 2023	Process States. Draw PCB Diagram
June 2023	Difference among Short Term, Medium Term and Long Term Scheduler
June 2023	Difference between Threads and Process
June 2023	CPU Scheduling Numerical (SCAN not included)
Nov 2022	Process and Process State Diagram
Nov 2022	Paging and Segmentation
June 2022	Process Management Activities of Operating System

June 2022	Concept of Threads and Resources Used in Thread Creation
June 2022	Segmentation Address Mapping Numerical
June 2022	Page Table Size Numerical

Topic-wise PYQ Mapping

1. Process Concept

PYQs

Nov 2022

- What is Process?
- Explain Process State Diagram.

June 2023

- Process States.
- Draw PCB Diagram.

Nov 2023

- Process State and State Transition Diagram.

Frequency

★★★★★ MOST REPEATED

2. Scheduling Concepts

PYQs

June 2023

- Difference between Long Term, Medium Term and Short Term Scheduler.

Frequency



3. Types of Schedulers

PYQs

June 2023

- Explain Short-Term Scheduler.
- Explain Medium-Term Scheduler.
- Explain Long-Term Scheduler.

Frequency



4. Process State Diagram

PYQs

Nov 2022

- Process State Diagram.

June 2023

- Process States and PCB.

Nov 2023

- State Transition Diagram.

Short Notes

- June 2022 Additional

Frequency



5. Scheduling Algorithms

PYQs

Nov 2023

- FCFS
- SRTF

Dec 2024

- FCFS Numerical
- RR Numerical
- Preemptive SJF Numerical

June 2025

- RR Variant Question

Additional Paper

- FCFS vs SJF Numerical

Frequency

★★★★★ MOST IMPORTANT

6. Algorithm Evaluation

PYQs

Dec 2024

- What are the criteria for evaluating CPU Scheduling Algorithms?

Frequency

★★★★★

7. System Calls for Process Management

PYQs

No direct question found.

Indirectly included under:

- Process Management Activities
- PCB
- Process Creation

Frequency

★★★

8. Multiple Processor Scheduling

PYQs

June 2025

- Multiprocessor Scheduling Concepts

Short Note

- Multiprocessor Operating System

Frequency



9. Concept of Threads

PYQs

June 2022

- Resources used in thread creation.

June 2023

- Difference between Thread and Process.

Nov 2023

- Thread Control Block.

June 2022 Additional

- Types of Threads.

Frequency



MEMORY MANAGEMENT

10. Partitioning

PYQs

No direct question found.

Frequency



11. Swapping

PYQs

No direct question found.

Frequency



12. Segmentation

PYQs

Nov 2022

- Paging and Segmentation.

June 2022

- Segmentation Address Mapping Numerical.

Frequency



13. Paging

PYQs

Nov 2022

- Paging.

Nov 2023

- Demand Paging.

June 2025

- Optimal Page Replacement Numerical.

Frequency



14. Paged Segmentation

PYQs

No direct question found.

Frequency



15. Comparison of Memory Techniques

PYQs

Nov 2022

- Compare Paging and Segmentation.

Frequency



16. Overlay

PYQs

June 2024

- What is Overlay?

Frequency



17. Dynamic Linking & Loading

PYQs

June 2024

- Explain Dynamic Linking and Loading.

Frequency



18. Virtual Memory

PYQs

June 2024

- Benefits of Mapping Objects into Virtual Memory.

Nov 2023

- Explain Virtual Memory.

Frequency



19. Demand Paging

PYQs

Nov 2023

- Demand Paging.

Short Notes

Frequency



20. Page Replacement Algorithms

PYQs

Nov 2023

- FIFO Numerical
- LRU Numerical
- Optimal Numerical

June 2025

- Optimal Numerical

Dec 2024

- Page Replacement Question

Frequency



Most Repeated Questions



- Process States
- State Transition Diagram
- PCB

Appeared:

- 2022
 - 2023
 - 2023
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CPU Scheduling Numericals

- FCFS
- SJF
- SRTF
- RR

Appeared:

- 2023
 - 2024
 - 2025
-

Threads

- Thread vs Process
- Thread Creation
- Types of Threads
- TCB

Appeared:

- 2022
- 2023
- 2023

Paging & Segmentation

- Paging
- Segmentation
- Address Mapping

Appeared:

- 2022
- 2022
- 2023

Page Replacement

- FIFO
- LRU
- Optimal

Appeared:

- 2023
- 2024
- 2025