CSE 3rd Sem OS Question 1,2,3 unit

✅ UNIT–1: Operating System Concepts (Most Important Questions)

📌 1.1 Operating System – Concept, Components

1. What is Operating System? Explain its components.

2. Difference between System Software and Application Software.

3. Explain Kernel and Shell.

4. Explain structure of operating system.

📌 1.2 Functions of Operating System

5. Explain any four functions of an Operating System.

6. Program Management vs Resource Management.

7. Explain File Management in OS.

8. Explain Device Management.

📌 1.3 Views of OS

9. User View vs System View of an Operating System.

10. Explain layered view of OS.

📌 1.4 Types of Operating Systems

11. Explain Batch Operating System.

12. Explain Multiprogramming OS.

13. Explain Time-Sharing Operating System.

14. Explain Real-time Operating System.

15. Difference between Multiprocessing and Multithreading.

16. Mobile Operating System – features.

📌 1.5 Services of OS

17. Explain different services provided by OS (VERY IMPORTANT).

18. What is Protection and Security in OS?

📌 1.6 System Calls

19. What is System Call? Explain its types.

20. Difference between System Call and API.

✅ UNIT–2: Process Management (Most Important Questions)

📌 2.1 Process, PCB, States

1. What is a Process? Explain process states with state diagram.

2. What is PCB? Explain its components.

3. Program vs Process.

4. Explain Context Switching.

📌 2.2 Process Scheduling

5. Explain Scheduling Queues.

6. Role of Scheduler.

7. Explain Long-term, Medium-term, Short-term scheduler.

8. What is Context Switch? Why is it needed?

📌 2.3 Inter-Process Communication (IPC)

9. What is IPC? Why is it needed?

10. Explain Shared Memory method.

11. Explain Message Passing method.

12. Advantages & disadvantages of Shared Memory vs Message Passing.

📌 2.4 Threads

13. What is a Thread? Types of threads.

14. User-level thread vs Kernel-level thread.

15. Advantages of Multithreading.

16. Multithreading Models:

Many-to-One

One-to-One

Many-to-Many

✅ UNIT–3: CPU Scheduling & Algorithms (Most Important Questions)

📌 3.1 Scheduling Types

1. What is CPU Scheduling? Why is it important?

2. Explain Preemptive vs Non-preemptive scheduling.

3. Define CPU burst and I/O burst cycle.

4. Scheduling criteria (VERY REPEATED):

Turnaround time

Waiting time

Response time

CPU utilization

📌 3.2 Scheduling Algorithms

5. Explain FCFS algorithm with example.

6. Explain SJF (Shortest Job First).

7. Explain SRTF (Shortest Remaining Time First).

8. Explain Round Robin algorithm with example.

9. Explain Priority Scheduling.

10. Multilevel Queue Scheduling (short note).

11. Numericals on FCFS/SJF/SRTF/RR (ALWAYS ASKED).

📌 3.3 Deadlock

12. What is Deadlock? Explain with example.

13. Necessary conditions for Deadlock (VERY IMPORTANT):

Mutual exclusion

Hold and wait

No preemption

Circular wait

14. Explain Deadlock Prevention.

15. Explain Deadlock Avoidance (Banker's algorithm short note).

16. Explain Deadlock Detection & Recovery.

17. Resource Allocation Graph (RAG) explanation.

🎯 TOP 25 MOST LIKELY QUESTIONS (90% Exam Chance)

Unit 1

1. What is OS? Explain functions.

2. Batch vs Time-sharing OS

3. System calls

4. Components of OS

5. Multiprogramming OS

6. Real-time OS

Unit 2

7. Process states diagram

8. PCB

9. Context switching

10. IPC – shared memory vs message passing

11. Threads + multithreading models

Unit 3

12. Preemptive vs Non-preemptive

13. FCFS (numerical)

14. SJF (numerical)

15. Round Robin (numerical)

16. Priority scheduling

17. Deadlock + necessary conditions

18. Deadlock handling methods

Unit 4

19. Paging

20. Segmentation

21. Page fault

22. FIFO, LRU, Optimal (numerical)

Unit 5

23. File attributes

24. File allocation methods

25. Directory structures