CSE 3rd Sem OS Question

✅ UNIT – 4: MEMORY MANAGEMENT (Most Important Questions)

📌 4.1 Basic Memory Management — Repeated Questions

1. Define memory management. Why is it needed in an Operating System?

2. Explain Contiguous and Non-contiguous memory allocation with diagrams.

3. What is Partitioning? Explain Fixed and Variable partitioning.

4. Difference between Internal and External Fragmentation.

5. Explain Free-Space Management techniques:

Bitmap method

Linked list method

6. What is Fragmentation? Types with example.

7. Explain Compaction. Why is it required?

📌 4.2 Virtual Memory — Most Expected

8. Define Virtual Memory. How does it work?

9. Explain Paging with neat diagram.

10. What is Page Table? Explain its structure.

11. Paging vs Segmentation (VERY IMPORTANT).

12. What is Page Fault? Explain its causes.

13. Define Thrashing. Explain with example.

14. Segmentation — Concept and advantages.

📌 4.3 Page Replacement Algorithms — 90% Chances

15. Explain FIFO page replacement algorithm with example.

16. Explain LRU page replacement algorithm with example.

17. Explain Optimal page replacement with example.

18. Compare FIFO, LRU, and Optimal algorithms.

19. What is Belady's Anomaly? When does it occur?

20. Numerical: Given a reference string, find page faults using FIFO/LRU/Optimal.

✅ UNIT – 5: FILE MANAGEMENT (Most Important Questions)

📌 5.1 File Concepts — MOST REPEATED

1. What is a file? Explain file attributes.

2. Explain different file operations.

3. Types of files in OS with examples.

4. File System Structure — Explain logical and physical structure.

5. File access rights — Read, Write, Execute (short note).

📌 5.2 File Access & Allocation Methods

6. Explain Sequential, Direct, and Indexed file access.

7. Difference between Sequential and Direct access.

8. Explain File Allocation Methods:

Contiguous allocation

Linked allocation

Indexed allocation

9. Advantages + disadvantages of each allocation method.

10. What is File Fragmentation? How to reduce it?

📌 5.3 Directory Structure — 90% Chances

11. What is Directory? Explain its functions.

12. Explain Single Level Directory structure.

13. Explain Two-Level Directory structure.

14. Explain Tree Structured Directory.

15. Explain Acyclic Graph Directory structure.

16. Difference between Physical & Logical Disk structure.

17. What is Disk Organization? Explain with diagram.

🎯 TOP 20 MOST LIKELY QUESTIONS (Sbte Exam 2025 – 90% Chance)

Unit 4 (Memory Management)

1. Fixed vs Variable Partitioning

2. Internal vs External Fragmentation

3. Paging with diagram

4. Segmentation vs Paging

5. Free-space management (Bitmap / Linked list)

6. Page Fault

7. Virtual Memory

8. Thrashing

9. FIFO page replacement numerical

10. LRU numerical

Unit 5 (File Management)

11. File attributes

12. File operations

13. File types

14. Sequential vs Direct access

15. Contiguous / Linked / Indexed allocation

16. Directory structures (Single / Two-level / Tree)

17. Disk structure – physical vs logical

18. File system structure

19. Indexed allocation example

20. Directory advantages & disadvantages