Test

Opened: Friday, 5 December 2025, 4:00 PM
Due: Friday, 5 December 2025, 5:00 PM

OPERATING SYSTEM – QUESTION PAPER (40 Marks)

Topics: Memory Management, Deadlocks, Disk Allocation Techniques

Section A – Short Answer Questions (5 × 2 = 10 Marks)

Answer any five questions. Each question carries 2 marks.

1. Define internal and external fragmentation with examples.
2. What is thrashing in memory management?
3. List any two conditions necessary for deadlock to occur.
4. What is a safe state in deadlock avoidance?
5. Define seek time and rotational latency in disk operations.
6. Differentiate between contiguous and non-contiguous disk allocation.

7. What is the purpose of a page table?

Section B – Medium Answer Questions (3 × 5 = 15 Marks)

Answer any three questions. Each question carries 5 marks.

1. Explain paging and segmentation. Compare them with suitable diagrams.
2. Discuss the Banker's Algorithm for deadlock avoidance with an example.
3. Explain the FIFO and LRU page replacement algorithms with a sample reference string.
4. Describe the different types of disk scheduling algorithms (FCFS, SSTF, SCAN, C-SCAN).
5. Explain the linked and indexed file allocation techniques with advantages and disadvantages.

Section C – Long Answer Questions (1 × 15 = 15 Marks)

Answer any one question. Each question carries 15 marks.

1. A system uses demand paging. Given a page reference string and three frames, compare page faults generated using **FIFO, LRU, and Optimal** page replacement algorithms. Explain the working of each algorithm in detail.

OR

2. (a) Explain the resource allocation graph (RAG) with an example.
   (b) A system has 4 processes and 3 resource types. Using the Banker's Algorithm, show whether the given state is safe, and describe how the next request would be handled.

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Submission status

Submission status	No submissions have been made yet
Grading status	Not graded
Time remaining	53 mins 45 secs remaining

Previous activity

Assignment 4

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