

## PAST YEARS QUES

Explain the effect of page frame size on performance of page replacement algorithms.

Explain Thrashing

Consider the following snapshot of the system. Using Bankers Algorithm, determine whether or not system is in safe state. If yes determine the safe sequence.

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	3	0	1	4	5	1	1	7	0	3	0	1
P1	2	2	1	0	3	2	1	1				
P2	3	1	2	1	3	3	2	1				
P3	0	5	1	0	4	6	1	2				
P4	4	2	1	2	6	3	2	5				

Given memory partitions of 150k,500k,200k,300k,550k(in order) how would each of the first fit, best fit and worst fit algorithm places the processes of 220k,430k,110k,425k(in order).Evaluate, which algorithm makes most efficient use of memory?

Explain synchronization problem in detail. How counting semaphore can be used to solve readers writers problem.

Calculate number of page faults and page hits for the page replacement policies FIFO, Optimal and LRU for given reference string 6, 0, 5, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 5, 2, 0, 5, 6, 0, 5 (assuming three frame size)

suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests in FIFO is ordered as 80, 1470, 913, 1777, 948, 1022, 1750,130. What is the total distance that the disk arm moves for following by applying following algorithms? 1. FCFS 2. SSTF 3. LOOK 4. SCAN

Explain various file allocation techniques

What is deadlock? Explain the necessary and sufficient condition for deadlock. What is the difference between deadlock avoidance and prevention?

Explain the following in brief:

(a) Process synchronization

(b) Inter-Process Communication

What is paging? Explain LRU, FIFO and Optimal page replacement policy for the following string. Page frame size is 4.

1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2

Explain banker's algorithms in detail.

Explain paging hardware with TLB along with protection bits in page table.

Explain

- (c) Readers and writer problem using Semaphore
- (d) Explain disk scheduling algorithms.

- a. What are Semaphores? Differentiate between Counting and Binary Semaphores. Discuss Dining Philosopher problem.
- b. What do you understand by a deadlock? Explain deadlock avoidance method.

- a. Explain different types of memory fragmentation.
- b. Compare the performance of FIFO, LRU and Optimal based on number of page hit for the following string. Frame size = 3; String (pages): 1 2 3 4 5 2 1 3 3 2 4 5

- a. Explain Interrupt driven IO and discuss the advantages of Interrupt driven IO over programmed IO.

- b. Discuss various disk scheduling methods.

- a. Discuss various File Allocation Mechanism and their advantages.

Explain counting semaphore with examples.

What is paging? Explain LRU, FIFO and Optimal page replacement policy for the following string. Page frame size is 4. Calculate the hit ratio for the same.

1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2

Explain data structures used in banker's algorithms with example.

Explain virtual memory concept with respect to paging, segmentation and TLB.

- (c) Readers and writer problem using Semaphore
- (d) Compare disk scheduling algorithms.

Define Deadlock. Explain the necessary & sufficient conditions of deadlock. Suggest techniques to avoid deadlock.

Given five memory partition of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would the first-fit, best-fit and worst-fit algorithms place processes of P1-212 KB, P2-417 KB, P3-112 KB and P4-426 KB (in order)? Which algorithm makes the most efficient use of memory? Use fixed size Dynamic partitioning method.

What is the producer consumer problem? Provide solution to consumer problem using semaphores.

Give details of file organization types .

Give details of IO Buffering techniques.

Explain the effect of page size on performance.

Describe Disk Scheduling algorithms with example

Explain File Allocation methods in detail.