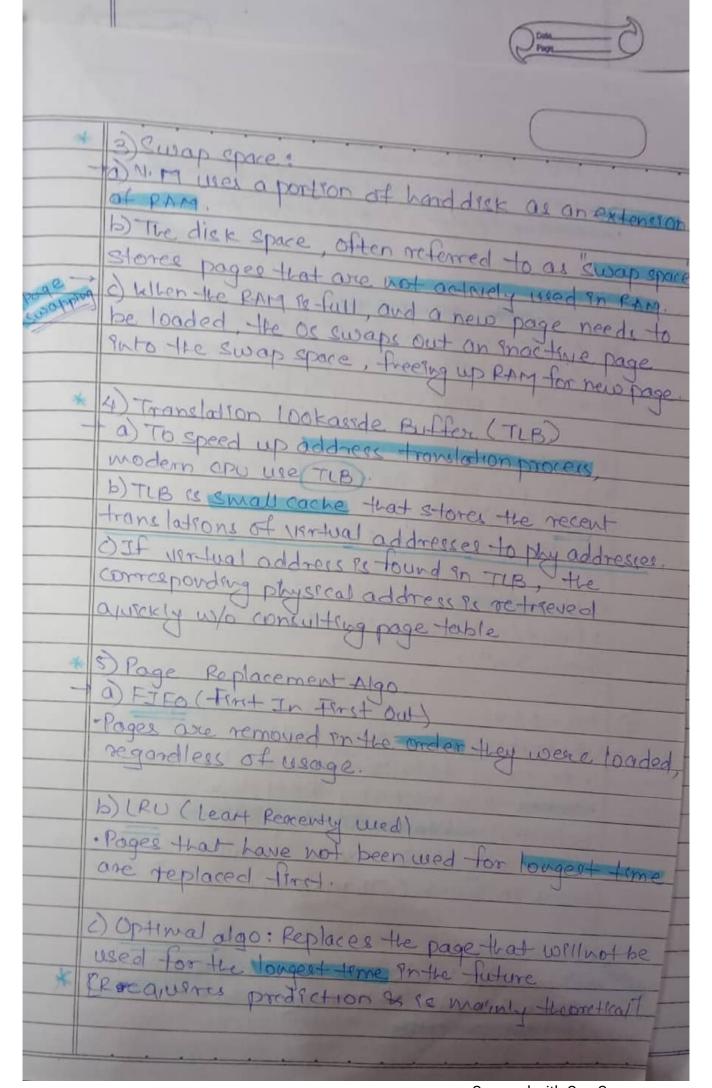
Page officet Session8 Q.D What's vertual memory? Pswap area + DV-M is a memory management technique "1911us on of a large, that provides an 2) It allows on O's to run large application contiquous block of memory or multiple applications comultaneously by cessing both RAM & diek space = I-Working : 1) Logscal Address of space-Fach process is given a vertual address space that is independent of the physical memory availar This space can be much larger than the actual Ray enabling processes to assume they have more memory than It physically exists. * 2) Paging: Al Demand paging: · Virtual memory often uses a technique called Demand pagging", where only the necessary parts of pages are loaded Puto physical memory Pages not currently muse are stored in desk (supap-frie) B/Bage Table! · A page table mops vertual addresses to Physical addresses. lather a program accesses data that sent in RAM, a (page fault) occurs, the required page is looded from disk into a free frome In physical memory



d) MRU chiast recently wed. - Page will be replaced whichhas been used According (Belady anomaly can occur) a) ADV:a) Effective Howary use! · B Allows the execution of large applications even of physical memory is ismeted. b) Isolation! · Each process Ps Psolated from others as each how 8+5 own um space securety, stability O Flexibility: - Processes can be allocated more memor dynamically. DPS - ADVE Performance overhead! (Swapspare) · Accessing data & from disk Pa much Slower tran accessing RAM, leading to potentral performance degradation Especially of system is Frequently swaming pages in gout (Thrashing) Space in sout of memory than executing actual processes.

Duna Propi
physical memory to support the active set of significant slowdown.
* Practical Implementation in Made
Dises a page file for swapping The size of the page file is often set auto by the system but can be manually configured. Dises a separate swap partition or swap file Dises a separate swap partition or swap file we of swap space.
we of swap space. 3 MacOs: > Handles V.M auto & wesswap files within the
* Session 9
Deadlock occurs when four conditions are met Simultaneously: a) Mutual exclusion
16) Hold & wart 10) No preemption 1d) Carcular waste

- Moles avoidance
Deadlock prevention & avoidance Deadlock prevention & avoidance The Deadlock preven
four conditions cannot hold & deadlock
four conditions cannot hold making incounce anordance which requires making in course
allocation decisions dynamically to ensure a system never enters a deadlocked state.
tralar enters a deadlock
System Never
- Notes
- D. S. Semaphone le a synchronization tool weed to
- A semaphore tea year resource in a
- Pontrol access to a comme
- Maria le
to solve constrain section problems & to
ensure mutual texclusion
- Moles BIAN MUTEX!
- A MUTEX is a more restricted type of
THAT IS A MOTOR STATE OF THE ST
Semaphore.
- It is used to lock a resource so that only one
- thread or process can accels it at a time
ensuring muthal excharge
- Ot) Producer - Consumer Problem
- > DIt is a classic sync problem where two
processes the producer & the consumer, share
a common buffer.
e) The producer adds Hems to the buffer &
The consumer removes tem.
3) Semaphores or mutexes are typically used
to manage access to the buffer & ensure that
the produces describents of the produce the
the producer docin't overflow the buffer &
I the consumer doesn't try to consume an fter
when buffer is empty.