

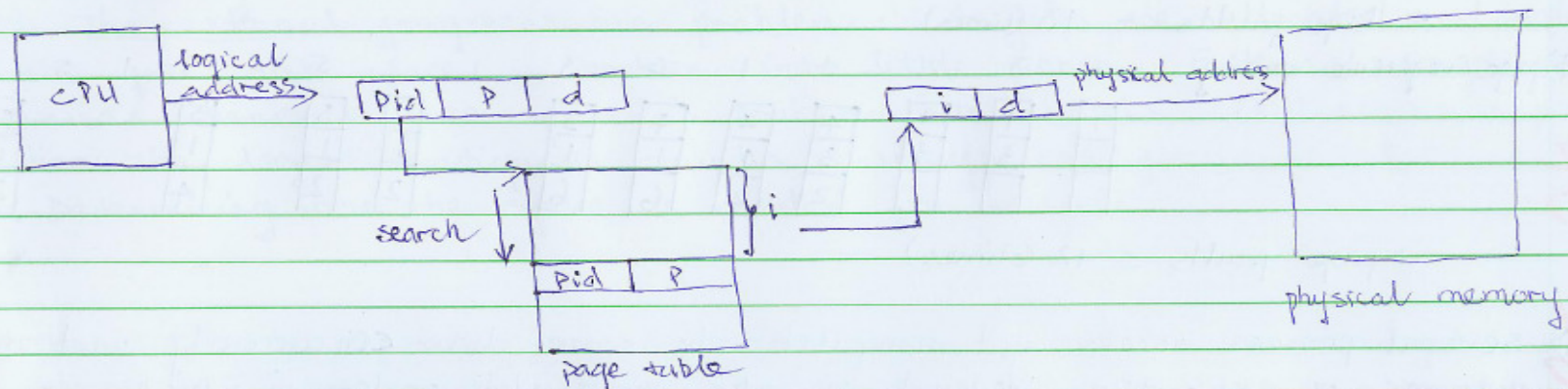
國立臺灣科技大學答案卷

評	分	教師簽名或蓋章
75		

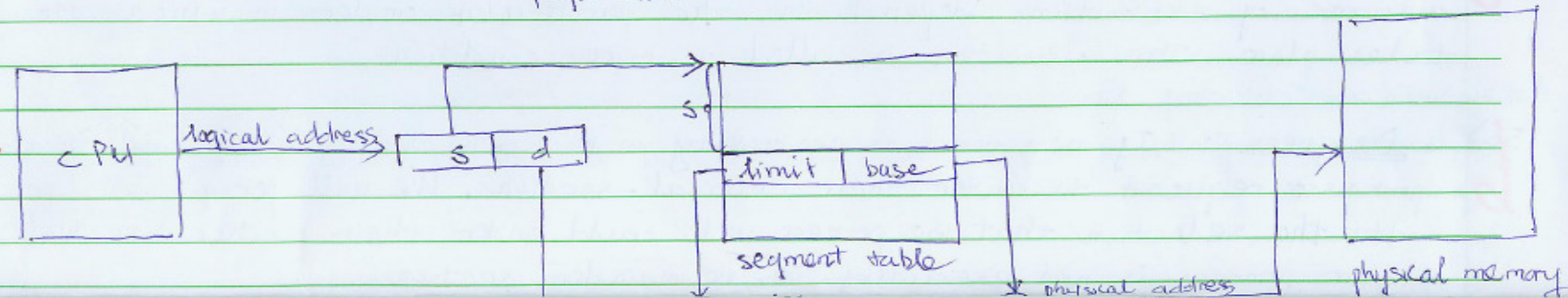
科目 _____ 任課教師 _____ 系所班組別 四資工三
 學號 B9415001 姓 名 范玉璽 考試日期 97 年 06 月 19 日

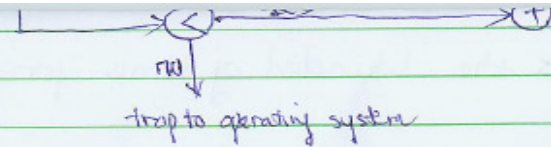
記分欄 從此處開始寫起，試卷用紙務須節用，非經主試認可不得續用其他紙張作答。

1a)
4



1b)
4





- 2p) With demand paging, the pages are only loaded when they are demanded during program execution. So, the two advantages of demand paging are:
- ① Less I/O need to load or swap user program into memory
 - ② Decreasing the amount of memory needed for a process.

4) Method 1: Working set

If a page is in active use, it will be in the working set, If it is no longer be used, it will drop from the working set.

Method 2: Frequency page-fault

If the actual page-fault rate exceeds the upper limit, we allocated process another frame. If the page-fault rate falls below the lower limit, we remove a frame from the process.

4) a) page-reference string 1 3 2 4 1 6 3 1 2 5 1 4 1 5 2 3

1	1	1	4	4	4	3		3	3	1	1				
	3	3	3	1	1	1		2	2	2	4				
		2	2	2	6	6		6	5	5	5			2	2

⇒ Page faults = 13 (times)

b) page-reference string 1 3 2 4 1 6 3 1 2 5 1 4 1 5 2 3

1	1	1	4	4	4	3		3	5		5				
	3	3	3	1	1	1		1	1		1			1	3
		2	2	2	6	6		2	2		4			2	2

⇒ page faults = 12 (times)

5) 6) Several process access and manipulate the same data concurrently and the outcome of execution depends on the particular order in which the access takes place. This situation is called a race condition.

5) 6) • Progress : If no process is executing in its critical-section, and some processes request to enter their critical-section. We will permit the processes into the selection that the process will could enter their critical-section, if their process is not executing its remainder section.

• Bounded waiting : is the bounded of time for waiting other process complete its critical-section

- 8a) 6
- no preemption : If a process request a resource is held by another process, then it must waiting until another process released that resource.
 - hold and wait : A process is holds least one resource, and it request addition resources are held by another processes.

5) To ensure that the circular wait conditions never occur in the system. We assign to each resource a unique integer number, and require the processes request resource in order increasement of enumeration

9) 8

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

⇒ The system is not a safe sequence, so it is not a safe state

- 10) (a) • Search directory time very long, if the directory is larger. Because, this search is a linear search.
• require space for the pointer
- (b) • The external fragmentation problem: As files are allocated and deleted, the free disk space is broken into little pieces. External fragmentation exists whenever free space is broken into chunks. It becomes a problem when the largest contiguous chunks is insufficient for a request.
• Determining how the space is needed for a file
- 11) 4 The FAT file system support direct access, because the FAT file system using the contiguous allocation method.
- 3) The most of page faults are three (a page-fault for instruction fetch, a page-fault for operand A fetch, and a page-fault for operand B fetch)