系別：資訊工程學系　　　　　科目：計算機組織與系統(含作業系統、計算機組織)

准帶項目請打「V」
簡單型計算機

本試題共 2 頁

1 Explain the following terms as details as possible (10%)

(a) Thrashing　(b)Belady's anomaly　(c)DMA　(d)RAID　(e)RISC

2. Consider the following snapshot of a system.

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P_0	0	0	1	2	0	0	1	2	1	5	2	0
P_1	1	0	0	0	1	7	5	0				
P_2	1	3	5	4	2	3	5	6				
P_3	0	6	3	2	0	6	5	2				
P_4	0	0	1	4	0	6	5	6				

(a) What is the content of the matrix *Need*? (5%)

(b) List the safe sequence if it exists. (10%)

(c) If a request from process P_1 arrives for (0,4,2,0), can the request be granted immediately? Explain the reason of your answer. (5%)

3. (a) List the information stored in PCB. Describe the actions taken by a kernel to context switch. (10%)

(b) Draw the process state transition diagram. Explain why a context switch may happen. (10%)

4. Draw a diagram to show the translation from logical address to physical address under single-level paging system with TLB. (10%)

◀注意背面尚有試題▶

淡江大學九十四學年度碩士班招生考試試題

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5. Consider a two-level memory hierarchy, M_1 and M_2. Denote the hit ratio of M_1 as h. Let C_1 and C_2 be the costs per kilobyte, S_1 and S_2 the memory capacities, and T_1 and T_2 the access times, respectively.

(a) What is the effective memory-access time T_a of this hierarchy? (5%)

(b) Let $r = T_2/T_1$ be the speed ratio of the two memories. Let $E = T_1/T_a$ be the access efficiency of the memory system. Express E in terms of r and h. (5%)

6. Use **NAND** gate to implement **AND, OR**, and **NOT** gates. (15%)

7. (a) What is the IEEE 754 representation of 32-bit integer binary format of a signed decimal number, -300? (7%)

(b) What is the IEEE 754 representation of 32 bits floating point binary format of a signed decimal number, -29.75? (8%)