

# 大同大學 95 學年度研究所碩士班入學考試試題

考試科目：系統程式

所別：資訊工程研究所

第 $\frac{1}{2}$ 頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

- (8%) 1. (a) What is an addressing mode?  
(b) What is the advantage of using immediate addressing?  
(c) What is the advantage of using indirect addressing?  
(d) What is the advantage of using relative addressing?
- (10%) 2. (a) Draw the state transition diagram, showing all the possible transitions.  
(b) Label each transition with a description of an event that might cause a process to make that transition.
- (12%) 3. Distinguish between:  
(a) location counter and program counter  
(b) CISC and RISC  
(c) internal fragmentation and external fragmentation
- (8%) 4. Describe in detail the four necessary conditions that are needed before deadlock can occur.
- (10%) 5. Define the following terms:  
(a) page fault  
(b) virtual memory address  
(c) the "blocked" or "waiting" state of a process  
(d) time-sharing system  
(e) thrashing
- (6%) 6. Describe the general interrupt handling sequence in a system with OS.
- (10%) 7. What does each of the following acronyms stand for? Also give a brief explanation for each of them.  
(a) VMM  
(b) YACC  
(c) DBMS  
(d) BNF  
(e) TLB

<背面繼續>

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考試科目：系統程式

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第  $\frac{3}{2}$  頁

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- (14%) 8. (a) Explain why most assemblers make two passes over the source program.  
(b) List the major functions performed during pass 1 of the assembler.  
(c) List the major functions performed during pass 2 of the assembler.  
(d) What are the major data structures (including variables, tables, and files) used by the assembler? Also explain their purposes.
- (10%) 9. (a) What is multiprogramming?  
(b) What is program relocation?  
(c) What parts of a program require modification for achieving program relocation?  
(d) How is the modification accomplished?
- (12%) 10. T for True, F for False.
- (a) The operator precedence method is a kind of top-down parsing technique.
  - (b) The elimination of common subexpressions in a program is one important source of machine-independent code optimization.
  - (c) Interrupts are used to achieve a typical timesharing OS.
  - (d) Setting the program counter is a privileged operation.
  - (e) In many operating systems, I/O devices are treated as files.
  - (f) In a pure demand paging, some pages of a process are kept in the main memory prior to the process execution.
  - (g) Compaction could be used to combat problems caused by internal fragmentation.
  - (h) The scheduling method FIFO could always prevent starvation.
  - (i) The Banker's algorithm is for deadlock recovery.
  - (j) Process scheduling decisions are made by the dispatcher.
  - (k) The boot program is performed when a new process is created.
  - (l) Netscape is not referred to as an operating system.