

科目：作業系統 A

日期：109 年 7 月 15 日 第 1 頁 共 1 頁

請 “✓” 明 ✓不可看書 可看書

* 請將答案依題號順序寫入答案卷

答題時字跡需工整，否則不予計分。Write your answers legibly; otherwise you will get zero score.

Answer the questions in Chinese or English. Be **clear** and **specific**. Your score depends on the correctness of your answer, not on the language you use.

1. [10 pts] Explain why favoring short jobs in CPU scheduling would be beneficial to the responsiveness of interactive processes.
2. [10 pts] Why interrupt disabling is not a valid solution to the critical section problem in a multiprocessor system?
3. [10 pts] You have an external RAM-disk device attached to your computer. The operating system of your computer offers two disk schedulers: The First-In First-Out scheduler and a seek-optimized one. The latter is equipped with a sophisticated algorithm that takes the disk-head movement time and rotational delay into consideration. Which one will you choose for the RAM disk and why?
4. [10 pts] Modern microprocessors support multiple page sizes, e.g., 4 KB pages and 4 MB pages. What are the pros and cons of using large pages and what are they of using small pages? (Give one reason for each of the four cases).
5. [10 pts] What is file fragmentation and how it is produced? Propose a method to prevent file fragmentation from being produced and a method to reduce the severity of existing file fragmentation.