東吳大學九十五學年度碩士班研究生招生考試試題

系級	資訊科學系碩士班 A 組	考試時間	100 分鐘
科目	作業系統	本科總分	100 分

1. Consider the following pages reference string of demanding paging in a virtual memory: 2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2 **(10%)**

   (1)How many page faults would occur for the following replacement algorithms assuming four free frames? Remember that all frames are initially empty, so your first unique pages will all cost one fault each. **(6%)**
   - ◎ FIFO
   - ◎ LRU
   - ◎ Optimal

   (2) Which algorithm is best under this situation? **(4%)**

2. List three main factors that influence the performance for selecting an optimal disk scheduling algorithm. **(10%)**

3. Protection is the ideal solution to the threat of virus. Then, propose the best antivirus approaches to fix the viral attack in a computer system. **(10%)**

4. What are three advantages of implementing an operating system written in high-level programming language such like C, or C++? **(10%)**

5. What is *time quantum* (or *slice*) of Round-Robin CPU scheduling used for? Also, how should the time quantum be related to the context switching time? **(15%)**

6. To eliminate deadlocks using resource preemption, what are three issues needed to be addressed in the case of resource preemption for dealing with deadlocks? **(15%)**

7. Propose two key issues to design soft real-time scheduling. Also, what are two components on conflict phase of dispatch latency in a soft real-time scheduling? **(15%)**

8. Simply define the "*middleware*". Also, since we have standards such as TCP/IP and OSI, why is middleware needed under networking environment? **(15%)**