

八十五學年度國立台灣工業技術學院研究所碩士班招生考試

所別：電子工程技術研究所

組別：計算機組

科目：作業系統

1. (a) What is the purpose of system calls? (10%)  
(b) What are the advantages of the layered approach to operating system (OS) design? (10%)
  
2. In the following algorithms:
  - (1) First-Come-First-Served
  - (2) Shortest-Job-First
  - (3) Longest-Job-First
  - (4) Round-Robin
  - (5) Highest-Priority-First
  - (6) Last-Come-First-Served
  - (a) Which one(s) is/are the reasonable long-term scheduling algorithm(s)? (8%)
  - (b) Which one(s) is/are the reasonable short-term scheduling algorithm(s)? (8%)
  
3. Consider a system consisting of four resources of the same type that are shared by three processes, each of which needs at most two resources. Is the system deadlock-free? Why? (14%)
  
4. Which of the following programming techniques and structures are "good" for a demand-paged environment? Which are "not good"? Explain your answers. (20%)
  - (1) Stack
  - (2) Hashed symbol table
  - (3) Sequential search
  - (4) Binary search
  - (5) Vector operations
  
5. When a file is removed, its blocks are generally put back on the free list, but they are not erased. Do you think it would be a good idea to have the operating system erase each block before releasing it? Consider both security and performance factors in your answer, and explain the effect of each. (10%)
  
6. (a) Describe the difference(s) between distributed OS and network OS? (10%)  
(b) Describe the difference(s) between thread and process? (10%)

