

國立中山大學資訊工程學系
106學年度第1學期博士班資格考試

科目：作業系統

1. Basic of OS (20%)

- (1) What is an operating system? (5%)
- (2) Please draw the von Neumann architecture. (5%)
- (3) What is spooling? (5%)
- (4) What is the objective of storage pyramid? (5%)

2. Process Scheduling (20%)

- (1) Please explain the five criteria to evaluate process scheduling algorithms. (5%)
- (2) What is the major problem of the priority scheduling? How to solve it? (5%)
- (3) Describe the differences among short-term, medium-term, and long-term scheduling. (5%)
- (4) How does symmetric multiprocessing work? (5%)

3. Memory Management (20%)

- (1) What is the difference between external and internal fragmentation? (5%)
- (2) Why are segmentation and paging sometimes combined into one scheme? (5%)
- (3) How do caches help improve performance? (5%)
- (4) Why do systems not use more or larger caches if they are so useful? (5%)

4. Deadlock (20%)

- (1) What is the corresponding approach to deal with each deadlock condition in the deadlock prevention solution? (10%)
- (2) Please explain how the two-phase locking method works? (10%)

5. System Security (20%):

- (1) What is the major difference between a virus and a worm? (5%)
- (2) What is a Trojan horse? (5%)
- (3) What is phishing? (5%)
- (4) How does a worm infect computers? (5%)