

國立交通大學試題紙

一百學年度第二次
博士班資格考

科目：作業系統(A)

日期：101 年 7 月 26 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.

10 points per question

1. What are the differences between the (1) message passing and (2) the shared memory communication mechanism? What are their advantages and disadvantages?
2. Describe the differences among short-term, medium-term, and long-term scheduling.
3. Consider a failure that occurs during 2PC(Two-phase Locking Commit) for a transaction. For each possible failure, explain how 2PC ensures transaction atomicity despite the failure.
4. What are the differences between the deadlock prevention approach and the deadlock avoidance approach? Give an example for each approach.
5. What are the implications of assigning a new timestamp to a transaction that is rolled back? How does the system process transactions that were issued after the rolled-back transaction but that have timestamps smaller than the new timestamp of the rolled-back transaction?

◎請用深黑色鋼筆或原子筆出題

命題老師簽名：

科目：作業系統(B)

日期：101 年 7 月 26 日 第 1 頁 共 1 頁

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1. Some TLBs store address-space identifiers (ASIDs) in each TLB entry. What is the purpose of using ASID in TLB? How does the ASID scheme work?
 2. Describe the design of the LRU page replacement algorithm. Explain how to use (1) counter or (2) stack to implement such an algorithm.
 3. Explain the designs and implementations of the virtual file system (VFS). What are the advantages of VFS?
 4. A swap space can reside in one of two places: It can be carved out of the normal file system, or it can be in a separate disk partition. Explain in details the advantages and disadvantages of these two approaches.
 5. In a distributed operating system, the following three types of migration are possible: (1) Data migration, (2) Computation migration, and (3) Process migration. Explain the differences among these types of migration and their implementation.
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