

國立雲林科技大學資訊管理系
107 學年度第 1 學期博士班資格考

科目：資料庫系統

時間：4 小時 (Closed book)

作答時，請注意各題之比例配分，並清楚標示題號

第一部份：(7 題中請自行選擇 5 題作答)

1. What are the different types of database end users? Discuss the main activities of each. (10%)
2. Discuss the entity integrity and referential integrity constraints. Why is each considered important? (10%)
3. Discuss the differences between the ER (Entity-Relationship) model and the EER (Enhanced Entity-Relationship) model. (10%)
4. What is meant by the attribute preservation condition on a schema decomposition? (10%)
5. What is meant by the completeness and soundness of Armstrong's inference rules? (10%)
6. Discuss what is meant by each of the two terms in the context of database security: (1) access control, (2) data encryption. (10%)
7. What are the relative merits of using DAC (Discretionary Access Control) or MAC (Mandatory Access Control) regarding database security? (10%)

第二部份：(6 題中請自行選擇 4 題作答)

1. When is a query language called relationally complete? (12.5%)
2. Discuss the correspondences between the ER model constructs and the relational model constructs. Show how each ER model construct can be mapped to the relational model and discuss any alternative mappings. (12.5%)
3. Define fourth normal form. When is it violated? When is it typically applicable? (12.5%)
4. Define join dependency and fifth normal form. (12.5%)
5. Discuss the advantages and disadvantages of using (a) an unordered file, (b) an ordered file, and (3) a static hash file with buckets and chaining. Which operations can be performed efficiently on each of these organizations, and which operations are expensive? (12.5%)
6. Discuss the deferred update technique of recovery. What are the advantages and disadvantages of this technique? Why is it called the NO-UNDO/REDO method? (12.5%)