

國立雲林科技大學資訊管理系  
106 學年度第 1 學期博士班資格考

考試科目：資料庫系統  
時數與方式：四小時；Close book

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第一部份：

1. What are the responsibilities of the DBA and the database designers? (10%)
2. Please define the following two terms in the context of Enhanced Entity-Relationship (EER) data model: (a) specialization and (b) generalization. (10%)
3. What is a transaction? How does it differ from an Update operation? (10%)
4. What are the relative merits of using DAC (Discretionary Access Control) or MAC (Mandatory Access Control) regarding database security? (10%)
5. What are the properties of dependency preservation and lossless join of a decomposition? Which one must definitely be satisfied? Why? (10%)

第二部份：

1. What is meant by a *safe expression* in relational calculus. (10%)
2. Discuss the main categories of data models. What are the basic differences between the relational model, the object model, and the XML model? (10%)
3. What is the impedance mismatch problem? Which of the three programming approaches minimizes this problem? (10%)
4. What is a functional dependency? What are the possible sources of the information that defines the functional dependencies that hold among the attributes of a relation schema? (10%)
5. What are storage area networks? What flexibility and advantages do they offer? (10%)