國立中央大學八十九學年度碩士班研究生入學試題卷

所別：資訊管理學系 甲乙丙丁組　科目：計算機概論　共 1 頁 第 1 頁

一、(共 20%，每一題 2%)選擇題：

According to Laudon and Laudon (6th ed., 2000), there are six major types of information processing systems. They are 1) ESS (Executive Support System), 2) DSS (Decision Support System), 3) MIS (Management Information System), 4) KWS (Knowledge Work System), 5) OAS (Office Automation System), and 6) TPS (Transaction Processing System).

Note: You **MUST** answer the following questions with the "number" associated with each type of systems.

1. Enterprise Resource Planning systems are best categorized as a(n): _____ .
2. Data warehouse is typically considered a(n): _____ .
3. Package Tracking systems from UPS, or FedEx are best categorized as a(n): _____ .
4. On-line Analytical Processing tools are best categorized as a(n): _____ .
5. E-mail systems are best categorized as a(n): _____ .
6. Groupware, such as Lotus Notes, are best categorized as a(n): _____ .
7. General ledger is a typical application of _____ .
8. Computerized Reservation Systems are best categorized as a(n): _____ .
9. A _____ is typically a major source of data that is required by the other systems.
10. The _____ is primarily a recipient of data from the other type of systems.

二、(10%)在非物件導向程式語言環境，以結構化方法進行資訊系統發展的分析與設計時，所包括的工作及工作順序如何？工作之內容及產出爲何？

三、(10%)什麼是 database？ Physical model database 的設計該如何進行？

四、(5%)試述 Multiprocessor Systems (NOT Distributed Systems)的優缺點。

五、(5%)試說明網際網路中 Domain Name Server 的角色與工作處理方式。

六、(5%)試說明甲、乙兩公司如何利用 Public Key Encryption 交換資訊？爲何它可以保障資訊傳輸的安全？

七、(5%)述說出 Routers 與 Bridges 處理資料時的差異性？

八、(20%)請定義並舉例說明下列的資料結構，並請具體指出他們之間的異同處。

- general tree
- binary tree
- threaded binary tree
- binary search tree
- 2-3 tree
- B-tree
- B*-tree

九、試寫一個程式用來計算費氏數列（Fibonacci numbers）F_n 的值。費氏數列的定義如下：$F_0 = 0$;

$F_1 = 1$;

$F_i = F_{i-1} + F_{i-2}$　　for $i \geq 2$　　(10%)

十、何謂封裝（Encapsulation）？何謂動態多型（Dynamic Polymorphism）？何謂繼承（Inheritance）？他們在物件導向（Object-oriented）的理論中分別扮演什麼樣的角色？　　(2+2+2+4%)