※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

A. **Short questions:**

A-1. Describe the meaning of location-based services and depict two different types of applications with examples.　(10%)

A-2. Define social CRM and explain how CRM systems could use social networking to support the customer life cycle? (10%)

A-3. Define intelligent agents and give an example of a type of intelligent agent. (8%)

A-4. A global fastener company is re-designing its information system. Describe at least three main technical issues. (12%)

A-5. Define business intelligence and use an example to describe how can business intelligence support decision making? (10%)

B、Short Answer Questions:

B1. At the "System Design" phase of a development project of an information system that implements the *structured* system analysis and design approach, a logical process can be implemented as *one to multiple* physical processes. Please specify the reasons why system analysts need to do this in some occasions. (10%)

B2. Providing users with high-quality information that they need is one of the key values of an information system. Please briefly introduce four key dimensions of information quality. You are encouraged to give example(s).
(10 %)

B3. Describe what version control/management is when developing an information system and discuss why it is important.
(7%)

B4. A marketing information system (MktIS) may provide its users with a function of predicting the customer lifetime value (CLV) of a potential (i.e., not-yet-acquired) customer. An equation developed by Gupta and Lehmann (2003) to calculate CLV is as follows:

$$\sum_{t=0}^{T} \frac{(P_t - C_t)\gamma_t}{(1+i)^t} - AC$$

where

P_t　= price paid by the customer at time t

C_t　= direct cost of servicing the customer at time t

γ_t　= probability of customer repeat buying or being "active" at time t

i　= discount rate or cost of capital for the firm

AC = acquisition cost

T　= time horizon for estimating CLV

One of the key decisions to make to allow this equation to work is to determine what retention rate (γ_t) to use for estimating CLV. Assuming that the retention rate of time t is determined by calculating the ratio of existing customers who place at least one purchasing order time t with an amount of equal to or greater than the 25% of the average amount of all the orders of all the customers at time t, what data does the MktIS should keep to support the execution of this task? Additionally, please specify the internal processes

of the MktIS for supporting the calculation of γ_t using pseudo codes and SQL queries if applicable. (8%)

Source: Gupta, S. & Lehmann, D.R. (2003). Customer as assets. *Journal of Interactive Marketing*, 17(1), 9-24.

B5. Please fill in the blanks in the following sentences: (15%) （請在答案卷上作答）

(1) A company's management information system (MIS) and decision support system (DSS) can provide the company's _____ system with summarized information.

(2) _____ computing, which is one of the primary characteristics of cloud computing services, allows users to obtain computing capabilities as needed from a remote provider and pay only for the computing power used.

(3) You are creating a database to store the number of passengers of each of the stations of the Mass Rapid Transit (MRT) system of the metropolitan area of Taipei. Among the following pieces of information available, including (a) postal/zip code, (b) date, (c) name of the road the station is located, (d) station code, (e) day, and (f) name of MRT line, _____ is the most likely candidate to use as the primary key of the "Passenger Count" table.

(**Note:** *this is NOT a multiple-choice question*)

(4) A _____ network is the most appropriate for a small firm comprised of five employees and a supervisor located in the same office space, whose primary need is to share documents.

(5) _____ is a kind of phishing technique that redirects a user to a fake web page even when the user types the correct web address into his or her browser.