

※ 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。

1. Many information technology (IT) professionals have visioned the next wave of IT revolution to the use of the "Big Data." Please discuss how the wave of Big Data may influence the design of the contemporary information systems to support business processes in the following functional areas: marketing, supply chain management, and consumer/user services. (10%)
2. Discuss how we can utilize the concept and the related IT services of "cloud computing" to develop an education cloud services that enables the sharing of course materials and other resources, and what the key success factors are. (10%)
3. Choose a diagram that follows the unified modeling language (UML) specification to graphically depict the business process of searching employee directory, whose steps are described, as follows: (10%)
 - Step 1: This process is initiated when a user selects the option to search the employee directory.
 - Step 2: The system responds by displaying a search screen with options for entering a first or last name, department, location, job title, or supervisor. There is also an option to cancel the search.
 - Step 3: The user will fill in search criteria for one or more of the on-screen options.
 - Step 4: The system displays all employees matching the criteria with links to detailed information for each employee. There is also an option to return to the search screen.
 - Step 5: User clicks on detail link for an employee.
 - Step 6: The system will display the phone number, employee's office location, department, job title, and supervisor. The screen will include an option to return to the list of employees and an option to return to the search screen.
 - Step 7: The user views the information on the selected employee and then exits the use case.
 - Alternative step 3a: If the user cancels the search, the process will end.
 - Alternative step 4a: If no employees match the criteria, the system will display a message informing the user and then return to step 2.
 - Alternative step 5a: If the user selects the option to return to the search screen, the use case returns to step 2.
 - Alternative step 7a: If the user selects the option to return to the list of employees, the use case returns to step 4.
 - Alternative step 7b: If the user selects the option to return to the search screen, the use case returns to step 2.

(背面仍有題目，請繼續作答)

系所組別：資訊管理研究所甲組

考試科目：管理資訊系統

考試日期：0223，節次：2

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4. Describe what a data dictionary is, illustrate three primary components of a data dictionary, and provide one example of each of the component you specify. (8%)
5. Please fill in the blanks in the following sentences: (12%)
- (1) Spyware protection software that runs and updates itself automatically is an example of _____ technology.
 - (2) _____ systems capture the knowledge of skilled employees in the form of a set of rules in a software system that can be used by others in the organization.
 - (3) An information system for an automobile manufacturing company that tracks production costs for various factories across Taiwan can be categorized as a type of _____ system.
 - (4) An online clothing retailer's virtual fitting room that helps an online consumer to customize and order a dress for her college graduation party is a type of _____ system.
 - (5) The modeling tools in the _____ systems are used to provide different views of status, rather than to analyze large amounts of data to arrive at a solution for a specific problem.
 - (6) The managers of a restaurant chain (e.g., McDonald's) can use the analytical tools of their _____ system to identify the best locations to open new restaurants.

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6. Please identify and explain what five moral dimensions of the information age are (10%)

7. Student(snum: interger, sname: string, dept: string, reg_year: integer)

Class(name: string, credit: integer, fid: integer)

Enrolled(snum: integer, cname: string, score: float)

Faculty(fid: integer, fname:string, deptid:integer)

- I. Please draw a possible **ER diagram** with **data dictionary** for this schema. (5%)
- II. Please write down a SQL to find the student ID and name whose average score is bigger than 80. (5%)
- III. Please write a SQL to find the student names whose average score is ranked as number 1 of each department. (5%)

8. Internet becomes an important part of our life. Some technologies are widely used in Business. Please **explain** (do not just translate English to Chinese) what following terms mean: (1) VPN, (2) URI, (3) Semantic Web, (4) Social Media, and (5) NoSQL. (15%)

9. You are asking to select component for your personal computer. Currently what second storage could be used for most efficient access, and why? (5%) If your NIC card has been assigned 140.116.1.1, suppose this is a Class C network, what netmask should be set (please present this netmask in Hexadecimal) (5%)