

# 國立成功大學

## 115學年度碩士班招生考試試題

編 號： 161

系 所： 資訊管理研究所

科 目： 管理資訊系統

日 期： 0203

節 次： 第 3 節

注 意： 1. 不可使用計算機  
2. 請於答案卷(卡)作答，於  
試題上作答，不予計分。

**Part A:****A1. UML Modeling -**

(a) Please use the UML syntax and notations to develop the symbol of a design class of "Professor." The class should include the following **private attributes**: teacher ID (string; specifying it as a key), first name (string), last name (string), address (string), cell phone number (string; specifying a default value of +886+900000000), college (string), department (string), office phone number (string), date of birth (date), and date employed (date). Additionally, the class should have 2 constructors, one takes the first name, last name, and address as the parameters, the other takes first name, last name, and date employed as the parameters. The class should also have a public method of computing years of services by taking date employed as the parameter and return a float representing the computed years of services. (12%)

(b) Please develop a communication diagram for updating a professor's cell phone number. (5%)

**A2.** Please explain what the composable commerce architecture is, its key principles, and how it is different from the traditional e-commerce architecture. (12%)

**A3.** Please briefly introduce 3 methods of checking the validity of an input received by an information system. (9%)

**A4.** Please fill in the blanks in the following sentences: (12%)

- (1) The vision of the \_\_\_\_\_ is to allow artificial intelligence (AI) applications to have their own mental models, which are developed and constantly revised by utilizing multimodal real-world data, for comprehending the dynamics of the real world.
- (2) The \_\_\_\_\_ is an encryption algorithm that divides the message to be encrypted into a number of fix-length plaintexts, and then generate a corresponding ciphertext of the same length for each of the plaintexts.
- (3) The \_\_\_\_\_ refers to the phenomenon in which the AI applications produce misleading, unfair, or even discriminative results due to the use of the imbalanced training data or design flaws of the data analysis methods.
- (4) The technology of \_\_\_\_\_ is useful in terms of keeping records of a community currency in order to the integrity, consistency, and availability of the usage records of each unit of the community currency issued.

## Part B.

- B1. According to the nature of the social capital, what is the primary risk of an organization focusing solely on increasing the "Number of Relationships" within its network? (3%)
- It leads to "Analysis Paralysis" by generating too much data.
  - A large network with limited resources is less valuable than a smaller, well-resourced one.
  - It ignores the fact that any routine skill can be outsourced to the lowest bidder.
  - It fails to account for Nielsen's Law, which limits the connection speeds of those users.
- B2. Why do nontraditional DBMS products like NoSQL (e.g., MongoDB) often forgo "ACID" transaction support? (3%)
- They are designed for "Personal" scope information systems where data duplication is not a concern.
  - They prioritize the speed and processing power needed over the strict consistency
  - Relational databases are "essentially zero cost" due to Moore's Law, making ACID redundant.
  - NoSQL products are "Open Source" and therefore lack the features required for ACID compliance.
- B3. Which of the following best describes the "Enterprise Application Integration" (EAI) approach to solving the problem of departmental silos? (3%)
- It replaces all existing systems with a single, integrated ERP database.
  - It mandates that users follow the "Inherent Processes" of a new software suite.
  - It provides an integrated layer on top of existing systems.
  - It focuses on "Crowdsourcing" feedback to fix internal workflow problems.
- B4. A firm is considering deploying vibe coding tools across its business units to accelerate internal software development.
- Define vibe coding and identify the core technology that enables it. (6%)
  - Explain the concept of digital provenance using an example other than vibe coding. (6%)
  - Assume you are the CIO of this firm. Identify and explain the top two managerial risks introduced by deploying vibe coding without robust digital provenance. (8%)
- B5. Australia has banned social media use for individuals under the age of 16, encompassing platforms such as Facebook, Instagram, TikTok, and Threads. This ban directly impacts user acquisition, engagement metrics, and long-term platform growth.
- Using network effects theory, analyze how excluding users under 16 alters the long-term value proposition of social media firms. (6%)
  - From a strategic MIS perspective, explain how data generated by minors differs in strategic value from adult user data, particularly in terms of lifetime value and algorithm training. (7%)
  - Evaluate whether compliance with this ban is more likely to be treated by firms as a) a cost of doing business, or b) a catalyst for strategic redesign of their information systems. Justify your answer. (8%)