

國立成功大學

114學年度碩士班招生考試試題

編 號：171

系 所：資訊管理研究所

科 目：管理資訊系統

日 期：0211

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. Briefly describe what a “*stub/method stub*” is and what it is for when developing information systems. (6%)

A2. Choose *three* types of “*behavioral diagrams*” of the Unified Modeling Language (UML) and briefly describe what each of them is for. (12%)

A3. Assuming that you own a software development company, and you are working on a project for developing an information system for managing the information of concerts, bands that perform at the concerts, and the musicians of the bands. Therefore, you have to develop the schema of a *relational database management system* (RDBMS) for storing the information mentioned above. The database that you design has to be in the third normal form.

Please draw an entity relationship diagram to present the tables, the primary and foreign keys of the tables, the key attribute(s) of the tables in addition to their primary and foreign keys, and the multiplicities among the tables. Some of the tables that you may have in your RDBMS include *Concert*, *Band*, *Musician*, *PerformingBand*, and *MusicianSpecialty*. To reduce the level of the complexity of your design, it is assumed that a musician can only be the member of one band at the time, and has only one specialty.

(20%)

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

- (1) When a company intends to integrate all its business operations into a single digital platform, it needs to implement a(an) _____ system.
- (2) The online deceptive act of _____ usually involves setting up a phony Web site setting up to induce the web site visitors to offer their confidential information.
- (3) A company develops an online exhibition system to allow its customers in foreign countries to view the samples of the company's products online and offer their feedback to the company to enhance the efficiency of the product development process. This system can be seen as a module of a(an) _____ system.
- (4) The service of _____ is a type of cloud hosting service in which service providers offer their clients a hosted server, an operating system, and probably some other applications (e.g., a database management system) to allow the clients to install their own applications on the designated server.

Part B.

B1. Which of the following best describes the goal of Data Poisoning? (2%)

- a) To steal sensitive information from a dataset.
- b) To corrupt training data in order to manipulate the behavior of a machine learning model.
- c) To identify and remove biases present in a dataset.
- d) To increase the accuracy and performance of a machine learning model.

B2. Which of the following is NOT a potential application of Quantum Computing? (2%)

- a) Drug discovery and materials science
- b) Breaking modern encryption algorithms
- c) Optimizing financial portfolios
- d) Performing quick 3D rendering of complex models

B3. What is the primary objective of a Prompt Injection? (2%)

- a) To bypass authentication mechanisms and gain unauthorized access to a system.
- b) To inject malicious code into a running application, causing it to malfunction.
- c) To manipulate the inputs given to a language model, tricking it into revealing sensitive information or performing unintended actions.
- d) To overload a server with excessive requests, leading to a denial-of-service condition.

B4. What is the primary function of the "attention mechanism" in a transformer architecture? (2%)

- a) To apply mathematical operations to numerical data within the model.
- b) To selectively focus on relevant parts of the input sequence when processing information.
- c) To store and retrieve previously learned patterns for future use.
- d) To generate textual output based on the processed input.

B5. Enterprises can significantly benefit from adopting Low-Code/No-Code platforms.

- a. What are Low-Code/No-Code platforms, and how are they designed to enable user interaction? (6%)
- b. Explain how these platforms contribute to cost reduction for enterprises, providing specific examples where possible. (8%)
- c. Finally, identify and describe one potential challenge an enterprise might encounter when adopting and utilizing a Low-Code/No-Code platform. (8%)

B6. The competition surrounding Large Language Models (LLMs) is intense, with major tech companies rushing to develop and launch their own versions. While most LLMs require paid access and remain closed-source, Meta has made a notable exception by releasing its LLM as open-source.

- a. What are Meta's potential business motivations for releasing their LLM as open source? (8%)
- b. Meta's Llama 3.1 comes in several versions (8B, 70B, and 405B). What do the numbers and the letter "B" represent? How do these differences affect the performance and capabilities of the LLM? (6%)
- c. Are Large Language Models (LLMs) considered Artificial General Intelligence? Explain your reasoning. (6%)