

# 國立中山大學 114 學年度 碩士班考試入學招生考試試題

科目名稱：計算機概論【資管系碩士班甲組、乙組】

## — 作答注意事項 —

考試時間：100 分鐘

- 考試開始鈴響前不得翻閱試題，並不得書寫、劃記、作答。請先檢查答案卷（卡）之應考證號碼、桌角號碼、應試科目是否正確，如有不同立即請監試人員處理。
- 答案卷限用藍、黑色筆(含鉛筆)書寫、繪圖或標示，可攜帶橡皮擦、無色透明無文字墊板、尺規、修正液（帶）、手錶(未附計算器者)。每人每節限使用一份答案卷，請斟酌作答。
- 答案卡請以 2B 鉛筆劃記，不可使用修正液（帶）塗改，未使用 2B 鉛筆、劃記太輕或污損致光學閱讀機無法辨識答案者，後果由考生自負。
- 答案卷（卡）應保持清潔完整，不得折疊、破壞或塗改應考證號碼及條碼，亦不得書寫考生姓名、應考證號碼或與答案無關之任何文字或符號。
- 可否使用計算機請依試題資訊內標註為準，如「可以」使用，廠牌、功能不拘，唯不得攜帶書籍、紙張（應考證不得做計算紙書寫）、具有通訊、記憶、傳輸或收發等功能之相關電子產品或其他有礙試場安寧、考試公平之各類器材入場。
- 試題及答案卷（卡）請務必繳回，未繳回者該科成績以零分計算。
- 試題採雙面列印，考生應注意試題頁數確實作答。
- 違規者依本校招生考試試場規則及違規處理辦法處理。

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科目名稱：計算機概論【資管系碩士班甲組、乙組】

※本科目依簡章規定「不可以」使用計算機(混合題)

題號：442001

共 3 頁第 1 頁

單選或複選題，選項全對才給分，每題 4 分，共 52 分。

1. Which one(s) of the following descriptions for network address translation is(are) NOT true?
  - A. Port numbers of returned packets are mapped to the IP address and port number of the local network destination
  - B. The hosts within the local network utilize public IP addresses
  - C. Typically, the router has both a private and a public IP address
  - D. The router utilizes public IP address to communicate with the Internet
2. Which one(s) of the following is(are) NOT for exploiting the instruction-level parallelism in the execution of a computer program?
  - A. Superscalar execution
  - B. Multiple threads execution
  - C. Out-of-order execution
  - D. Speculative execution
3. Which one(s) of the following descriptions for C++ programming language is(are) NOT true?
  - A. Polymorphism enables one common interface for many implementations
  - B. All operators can be overloaded for user-defined types
  - C. Inheritance allows one data type to acquire properties of other data types
  - D. Templates allow functions and classes to operate with generic types
4. What does RAG stand for in LLM techniques?
  - A. Reinforced Arguments Generation
  - B. Rectified Articles Generalization
  - C. Reinforced Adversarial Generation
  - D. Retrieval Augmented Generation
5. Which one(s) of the following is(are) NOT for enhancing the generation performance of LLM?
  - A. Prompt engineering
  - B. RAG
  - C. Fine-tuning
  - D. Code optimization
6. Which one(s) of the following techniques is(are) appropriate for transfer learning on pretrained deep neural network models with small-scale datasets or limited computational resources?
  - A. Using feature extraction on the pretrained model to train new layers
  - B. Fine-tuning the pretrained model with new layers
  - C. Using the same network structure of the pretrained model to train a new network
  - D. Utilizing the prompt engineering technique
7. Which one(s) of the following descriptions is(are) true for reinforcement learning?
  - A. Assisting your colleagues in digital learning
  - B. Providing incentives for well-performed students in e-learning
  - C. Q-learning is a kind of reinforcement learning
  - D. An online learning technique for teaching activities

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8. Which one(s) of the following descriptions is(are) NOT true for the support vector machine?
- A. A linear-separator based approach
  - B. Maximizing the margin between two classes of data
  - C. An inherently nonlinear classification technique
  - D. Utilizing kernel functions to implicitly map data
9. Which one(s) of the following devices is(are) for relaying IP packets in Internet?
- A. Access point
  - B. Switch
  - C. Router
  - D. Modem
10. Which one(s) of the following descriptions is(are) NOT correct for the public key cryptosystem?
- A. Usually stronger in security than the pre-shared key encryptions with the same key length
  - B. The encryption is asymmetric
  - C. Can be utilized for digital signature
  - D. A fundamental component of the Transport Layer Security
11. Which one(s) of the following protocols is(are) NOT for virtual private network?
- A. L2TP
  - B. IPSec
  - C. PPTP
  - D. PPPoE
12. Ethernet relies on \_\_\_\_\_ to decide which host a frame should be received.
- A. MAC address
  - B. SSID
  - C. IP address
  - D. Port number
13. Which one(s) of the following descriptions is(are) true for the top-level domain?
- A. Country code top-level domains are two letters long
  - B. '.tv' domain is derived from the word television
  - C. Not all two-letter top-level domains are country code top-level domains
  - D. '.com' domain is derived from the word company

Fill-in-the-blank (20%, 5% for each blank)

1. Suppose the expression  $X[0, 0]$  referred to the first-row, first-column entry in a two-dimensional array with 5 rows and 7 columns. If the array is stored in column-major order beginning at memory address  $x$  and each entry in the array requires  $n$  memory cells, the address polynomial used to compute the address of the beginning of the entry  $X[I, J]$  is \_\_\_\_\_.
2. In the \_\_\_\_\_ method for synchronizing the operation of the CPU with an I/O device, the I/O device informs the CPU when it is ready for data transfer.
3. In an operating system, \_\_\_\_\_ is responsible for removing entries from the process table.

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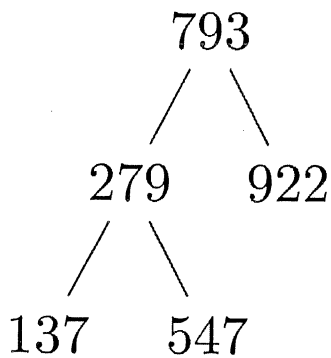
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4. The combination of sign and mantissa of a real number in IEEE standard floating point format is stored as an integer in the \_\_\_\_\_ representation.

## Open-Ended Questions

5. Explain the difference between a process that is waiting as opposed to a process that is ready. (8%)
6. Write the recursive function for printing every leaf node of a binary tree given its pre-order traversal in C programming language. (20%)  
For instance, given the binary tree below:



The input to the recursive function should be [793, 279, 137, 547, 922], and the output should be 137, 547, 922.