

國立屏東教育大學 99 學年度學士班轉學招生考試

計算機概論 試題

(資訊科學系)

*注意事項：(1) 本試題共 3 頁，答案請「橫式」書寫，並依規定上下翻頁，否則不予計分。
(2) 不必抄題，但請依序將題號標出，並寫在答案紙上。

一、選擇題（單選）每題 3 分，共 45 分

1. Which of the following is not a role of a typical operating system?

- A. Control the allocation of the machine's resources
- B. Control access to the machine
- C. Maintain records regarding files stored in mass storage
- D. Assist the computer user in the task of processing digital photographs

2. Which of the following systems is least efficient when encoding numeric values?

- A. Two's complement notation
- B. Excess notation
- C. ASCII
- D. Floating-point notation

3. The bus in a computer is an example of which form of communication?

- A. Serial
- B. Parallel
- C. Neither A nor B

4. Which of the following components of an operating system handles the details associated with particular peripheral equipment?

- A. Device drivers
- B. File manager
- C. Memory manager

5. Which of the following would not require real-time processing?

- A. Typing a document with a word processor
- B. Navigation of an aircraft
- C. Forecasting world-wide trade for the next five year period
- D. Maintaining a airline reservation system

6. Which of the following would be a concern of the file manager in a multi-user computer system that would not be a concern in a single-user system?

- A. Maintain records regarding the location of files
- B. Maintain records regarding the ownership of files
- C. Maintain records regarding the size of files
- D. None of the above

7. Which of the following is an activity?

- A. Algorithm B. Program C. Process D. Situation

8. Which of the following is not a way of classifying networks?

- A. WAN versus LAN B. Closed versus open C. Router versus bridge D. Star versus bus

9. Which layer of the TCP/IP hierarchy actually transmits a message?

- A. Application B. Transport C. Network D. Link

10. Preconditions, postconditions, and loop invariants are examples of which of the following?

- A. Pseudocode B. Iterative structures C. Assertions D. Recursion

11. Which of the following is a means of controlling the complexity of a software system?

- A. CRC cards B. Modularity C. Specifications D. Beta testing

12. If a queue contained the entries w, x, y, z (from head to tail), which of the following would be the contents after two entries were removed and the entry r was inserted?

- A. w, x, r B. y, z, r C. r, y, z D. r, w, x

13. The precise time complexity of which of the following problems has not yet been established by researchers?

- A. Sorting a list
B. Searching through a list for a particular entry
C. The traveling salesman problem
D. Listing all possible subcommittees within a given committee

14. Which of the following file structures is most efficient in cases in which the file is always processed in its entirety a predetermined order?

- A. Sequential B. Indexed C. Hash

15. At what “stage” of analysis is the meaning of the word ball in the following sentence determined?

- A. Syntactic analysis B. Semantic analysis C. Contextual analysis

二、問答題

1. 假定有一雜湊表 (hash table) 是由一個一維陣列 $A[0..9]$ 所構成。其雜湊函數 (hash function) 是採用 $f(x) = x^2 \bmod 9$ 且若發生碰撞 (collision) 時則採 linear probing 的方式尋找下一存放位置。假定，下列數值依序放入此雜湊表中。試寫出在執行完放置的任務後，雜湊表內各個位置的內容。 (15%)

13, 25, 3, 9, 16, 4, 8, 6, 18, 29

2. 計算下列兩個十六進位數值相加後之結果： $(235)_{16} + (3EF)_{16}$

- (1) 將結果以十六進位表示。 (5%)
- (2) 將結果以十進位表示。 (5%)
- (3) 將結果以八進位表示。 (5%)

3. 以下為一數學方程式之後序表達： $ABC + *BCA - **$

- (1) 請將此式子以前序表示。 (8%)
- (2) 若 $A=2$ 、 $B=3$ 、 $C=4$ ，則運算結果為何？ (7%)

4. 在Internet上有相當多功能不同的伺服器，請將下列三種伺服器所扮演的角色、功能作一描述。

- (1) Web server (5%)
- (2) Proxy server (5%)