

一、選擇題(28%)

1. Which of the following components is usually not found on a motherboard?(A) System Clock (B) RAM (C) CPU (D)Power Supply (E) Extension Slots
2. Which of the following is not hardware facility?(A) Virtual Memory (B) Cache Memory (C) Read Only Memory (D) Random Access Memory (E) Hard Disk
3. Bits are configured according to an encoding system, such as(A) FORTRAN (B) COBOL (C) BASIC (D) ASCII (E) C
4. Which of the following is the time it takes the read/write head to position itself over the proper track?(A) Rotational Delay(B) Data Transfer Time (C) Seek Time (D) Latency Time
5. Which of the following is wrong?(A) A mouse usually connects to a serial port (B)A PC usually provides three serial ports (C) A modem usually connects to a serial port (D) A printer usually connects to a parallel port (E) A PS2 mouse does not need serial port
6. A Collection of related fields of a data item is called(A) Field Group (B) Structure (C) Database (D) File (E) Record
7. Which of the following is not the database type of DBMS?(A) Hierarchical (B) Network (C) Relational (D) Tree
8. The execution of two or more programs by one user concurrently on the same computer with one central processor is called:(A) Multiprogramming (B) Multithread (C) Time-Sharing (D) Multitasking (E) Multiprocessing
9. Which type of LAN topology is adopted for Ethernet protocol.(A) Route (B) Ring (C) Bus (D) Repeater (E) Star
10. Which of the following converts name address to IP address?(A) Proxy (B) DNS (C) Mail Server (d) Gateway
11. Which of the following is lossy compression?(A)ZIP/PKZIP (B)GIF (C) tar (D)MPEF (E)RAR
12. Which of the following languages is less used in commercial applications than the other?(A) Cobol (B) C (C) C++ (D) ADA (E) LISP
13. Which of the following variable scope is smallest in the programming languages than the other?(A) Local Variable (B)Nonlocal Variable (C) Global Variable (E)Common Variable
14. Which of the following languages uses interpreter?(A) C (B) COBOL (C) FORTRAN (D) JAVA

二、填充題(24%)

1. $(3.75)_{10}+(4.625)_{10}$ 之 結果以二進制表示為 (A)
2. 假設使用一部 MIPS 的計算機來處理一件總共需要執行 120 億個指令的工作(job)，則需要 (B) 時間才能完成這一件工作
3. 在 multiprogramming 的作業系統中，考慮四個 jobs 抵達 ready queue 的時間與所需的 CPU 時間如下：
4. 若 CPU 的排程演算法採用非先取式最短作業優先法(non-preemptive-shortest-job-first method)，則需要 (C) 平均作業等待時間；若 CPU 的排程演算法採用最短剩餘時間優先法(shortest-remaining-time-first method)，則需要 (D) 平均作業等待時間。
5. 產生 Deadlock 的可能條件有：(E)、(F)、(G)、(H)

三、問答題

1. 在分時作業系統下，一位資料庫應用系統發展人員使用 C 程式語言、SQL 語言及關聯式資料庫管理系統來發展資料庫的應用軟體，試問：(A)SQL 功能與 DBMS 的關係為何？(B)試繪一圖形

說明用戶端與實體儲存體間之 SQL, OS, DBMS, C, Database 所扮演的角色。(15%)

2. 試說明(1)process 的定義(2)在一個 programming 的作業機系統中，一個 process 可能處於的 state 有哪幾種，試繪其關係圖。(12%)
3. A 為一個二維矩陣，A(3,2)的位址在 1110，A(2,3)的位址在 1115。假設每一個元素佔一個單位，矩陣 A 宣告為 A(m,n)，則 A(5,4)的位址為何？n 值為何？(6%)
4. 試比較循序串列(Sequential List)與鏈結串列(Linked List)的優點。(15%)