

國立虎尾科技大學九十六學年度研究所（碩士班）入學試題

所別：資訊管理系

科目：考試科目 1（計算機概論）

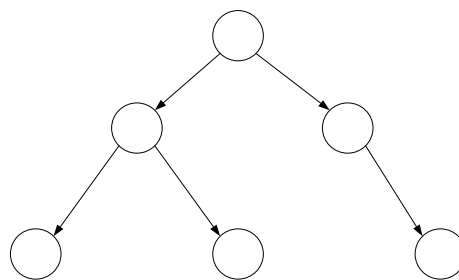
注意事項：

- (1) 本試題共有選擇題十五題，每題三分，共四十五分；問答題八題，共五十五分，合計一百分。
- (2) 請依序作答在答案卷上並註明題號。

一. 單選題：(每題 3 分，共 45 分)

1. Suppose there are n stacks. Items A, B, C, D are read into these stacks in the order of $A \rightarrow B \rightarrow C \rightarrow D$. What is the smallest n needed, if we like to have the output in the sequence of $D \rightarrow A \rightarrow B \rightarrow C$.
(a) one (b) two (c) three (d) four (e) none of the above
2. SQL (Structured Query Language)
(a) is a navigational language (b) specifies a sequence of raw relational operations (c) is a declarative language (d) is a low level programming language (e) none of the above
3. Which of the following is NOT the characteristic of Object-Oriented Programming (a) encapsulation (b) inheritance (c) function calls (d) methods (e) attributes
4. What is the value of $(10101)_2 - (01010)_2$? (please use the 2's complement to solve it) (a) $(10101)_2$ (b) $(01010)_2$ (c) $(10111)_2$ (d) $(01011)_2$ (e) none of the above
5. The bandwidth for wireless LAN IEEE802.11g is (a) 11Mbps (b) 54 Mbps (c) 100 Mbps (d) 80 Mbps (e) none of the above
6. Which of the following is a small block of very fast memory which keeps instructions and data used most frequently or most recently to speed up data transfer (a) programming ROM (b) virtual memory (c) cache memory (d) extension memory (e) register
7. TCP and UDP are (a) application-layer protocols (b) data-link-layer protocols (c) transport-layer protocols (d) network-layer protocols (e) session-layer protocols

8. Which of the following is NOT the characteristic of Applet (a) embedded in HTML language (b) stored on a server (c) run by a client browser (d) a complete stand-alone program that can be run independently (e) can be coded by JAVA
9. The sequence of visiting a binary tree is called “inorder traversal” if the visiting sequence is (1) traversing the left subtree first, then (2) visiting the root, and finally (3) traversing the right subtree. The preorder traversal of the following tree is (a)ABCDEF (b)DBEACF (c)BACDEF (d)BDEACF (e) none of the above



10. Only a portion of the program is placed in memory and the remainder is on disk. Sections on disk will be brought into memory as needed. The process is called (a) hashing (b) mapping (c) catching (d) fetching (e) paging
11. What is the remainder of $(2^{100}/10)$ (a)0 (b)2 (c)4 (d)6 (e)8
12. $(CB.A)_{16} =$ (a) $(203.625)_{10}$ (b) $(1211.1)_{10}$ (c) $(203.3)_{10}$ (d) $(1211.3)_{10}$ (e) none of the above
13. which of the following logic formula is TRUE (a)p and $\sim p$ (b)p or q or r (c) $((p \rightarrow q) \text{ and } p) \rightarrow q$ (d) $(p \rightarrow q) \text{ and } (\sim p \text{ or } q)$ (e) none of the above
14. Suppose a hashed file is constructed using the division hash algorithm of “key-value mod size”. Assume that indices of the hash table are labeled 0,...,6. The sequence of inserting the following key-values into the hash table is 24, 30, 3, 18, 15,21, 9. To read the keys out from the table following the order of 0,...,6 of the hash table’s indices, the key values are appearing in the sequence of (a) 24, 30, 3, 18, 15, 21, 9 (b)3, 9, 15, 18, 21, 24, 30 (c)21, 15, 30, 9, 24, 3, 18 (d)21, 15, 9, 30, 3, 24, 18 (e) none of the above

15. Which server accumulates and saves files that are most often requested by internet users in a special database? Therefore, it can increase the speed of your connection to the Internet (a) DNS (b) Web server (c) Proxy server (d) Firewall server (e) DB server

二. 問答題：

1. $F(A,B,C)=\bar{A}\bar{B}\bar{C}+\bar{A}\bar{B}C+\bar{A}BC+\bar{A}B\bar{C}+A\bar{B}\bar{C}+AB\bar{C}$ ，其最簡式為何？（5分）

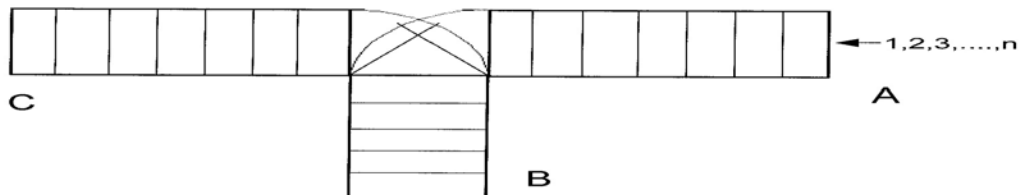
2. 考慮分頁替換演算法 FIFO，邏輯記憶體有三分頁，如果一參考字串為 2 3 2 4 1 2 1 3，請問有幾次 Hit？邏輯記憶體的分頁內容如何隨時間改變？（6分）

3. 請問可搶先 SJF 演算法的平均 waiting time？（6分）

	到達時間	CPU 執行所需時間
Process A	0	18
Process B	2	7
Process C	6	12
Process D	8	5

4. 172.20.0.0/19 共分成幾個子網路？每個子網路有幾個可用的 IP？（6分）

5. 鐵路交換網路如下圖。入口 A 端編號為 1,2,3,...,n 的車廂，每一車廂被拖入堆疊 B 端，並可以在任何時候將它拖出到出口 C 端。n=3 時，從出口 C 端離開，分別有哪幾種排列的方式？n=6 時，325641 的排列可能發生嗎？154263 的排列可能發生嗎？（10分）



6. 請將 $(E+D)*C-B/A$ 轉成前序式和後序式。（6分）

7. 請圖示說明 OSI 模型與 DoD 模型的對應關係。（6分）

8. 下列資料表是用來記錄員工工時的狀態，請問應該進行哪一種型式的正規化？正規化之後的資料表為何？(10分)

工號	姓名	工時種類	時數
00001	李正銜	正常工時	36
00001	李正銜	加班	10
00001	李正銜	休假	4
00002	劉文沖	正常工時	40
00003	林大強	正常工時	40
00003	林大強	加班	15