

佛光人文社會學院九十一學年度碩士班招生考試試題卷

系所別：資訊學研究所

科目：資訊概論

用紙 第 1 頁共 2 頁

一、選擇題

(每題兩分，共 30 分)

1. 在進行實體-關係分析的過程中，若能找出同性質物件或實體中各物件的個別特徵將有助於系統分析師辨認：①外來鍵(Foreign Keys)，②候選鍵(Candidate Keys)，③完整性規則(Integrity Rules)，④遞迴關係，⑤以上皆是。
2. 在 OSI 模式中，_____負責流程控制及錯誤更正的工作。①傳輸層，②網路層，③資料鏈結層，④會談層，⑤實體層。
3. 下列何種排序演算法在運算上是耗時最久的？①插入式排序法(insertion sort)，②選擇式排序法(selection sort)，③氣泡式排序法(bubble sort)，④累堆式排序法(heap sort)。
4. 下列何種指令是在結構化程式設計中應該避免使用的？①FOR，②WHILE，③GOSUB，④GOTO，⑤以上皆是。
5. 下列何者不會是資料萃取(Data Mining)的有效工具：①人工智慧技術，②文書處理軟體，③統計資料分析技術，④模版辨識(pattern recognition)技術，⑤以上皆是。
6. _____ provide a user interface, manage resources, and run applications. ① Utilities; ② Device drivers; ③ Compilers; ④ Operating systems。
7. Which of the following is NOT an example of an operating system? ①MS DOS; ②System 7; ③Office XP; ④Linux; ⑤all of the above。
8. The CPU is made up of the following two components: ① the control unit and the interface card; ② the RAM and the ROM; ③ the ALU and the control unit; ④ the RISC chip and the CISC chip。
9. A network to work well, it must have: ①core switch; ②cable modems; ③firewall; ④protocols。
10. Which of the following is NOT an advantage of a distributed system? ①resource sharing; ②reducing network traffic; ③reliability; ④computation speed up; ⑤All of the above。
11. Which is NOT true? ① $864_{16} = 8648_{10}$; ② $(12.625)_{10} = (1100.101)_2$; ③ $9D_{16} = 234_8$; ④ $(AA)_{16} \times (F)_{16} = 9F6_{16}$; ⑤None of the above。
12. What is the most serious problem facing the Ethernet? ①polling; ②collision; ③low speed; ④complexity; ⑤all of the above。
13. What are the typical sequential steps a CPU follows when executing an instruction? (a) puts the instruction to memory, (b) gets the instruction from memory, (c) decodes the instruction and give instructions for the transfer of appropriate data from memory to the ALU, (d) directs the ALU to perform the actual operation on the data, (e) direct the result of the operation to be stored in memory or register. ① $a \rightarrow b \rightarrow c \rightarrow d$; ② $a \rightarrow c \rightarrow d \rightarrow e$; ③ $b \rightarrow c \rightarrow d \rightarrow e$; ④ $a \rightarrow b \rightarrow c \rightarrow e$ 。
14. How many colors a display adaptor is capable to display if each pixel is represented by 8 bits of red, green, and blue respectively. ① 256; ② 64K; ③ 16.7 mega; ④ 24。
15. _____ simulate human thought processes and actions. ① Artificial intelligence; ② Virtual reality; ③ Multimedia; ④ Computer network。

不可使用計算機、電子字典及手提電腦等電子產品！

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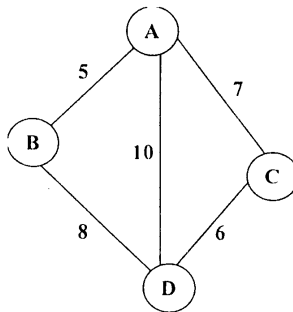
科目：資訊概論

用紙 第 2 頁共 2 頁

二、問答及計算題

(每題十分，共 70 分)

1. 何謂 Bridge Entity? 舉例說明如何解決 Entity-Relationship(E/R) Diagram 中多對多的關係。
2. 請定義「決策支援系統」及「智慧型決策支援系統」，並以說明「決策支援系統」之各個組成單元之應有功能及各單元間的相互關係。
3. A lot of people in the business world think that XML will make great impacts on electronic commerce, its global supply chain environment and e-marketplaces. Why? Are there obstacles in adopting XML in EC now? For those obstacles, is there any possible solution for each of them?
4. For the network given below, find a minimal spanning tree and a shortest-path tree rooted at A.



5. What is TCP/IP protocol suite? And, what is RSA?
6. For each of the following functions f , when $n = 1, 2, 3, \dots$, find the smallest function g in the order hierarchy such that f is $O(g)$: (1) $f(n) = (2+n) \times (3 + \log(n))$ and (2) $f(n) = n + n/2 + n/4 + n/8 + n/16 + \dots$
7. Given an integer array $a[1], a[2], \dots, a[n]$, use a programming language that you familiar with to write computer programs to implement the following basic sorting methods: (1) insertion sort and (2) bubble sort.

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