淡江大學九十三學年度進修學士班轉學生招生考試試題

系別：資訊工程學系三年級　　　科目：資　訊　概　論

准帶項目請打「○」否則打「×」	
X	簡單型計算機

節次：7月14日第3節

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1. Give the following fixed-size numbers.

(A) 55545　　(B) 35768　　(C) 99999

(1) If these numbers are represented by ten's complement, what are actual numbers represented by these numbers? (5%)

(2) If these numbers are represented by nine's complement, what are actual numbers represented by these numbers? (5%)

2. Consider a binary tree represented by the following array. (25%)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
25	15	30	7		26	40	2	8					35	

(1) Please draw this binary tree.

(2) Name the content of each of the leaf nodes.

(3) Name the content of nodes that are the ancestors of the nodes whose content is 2.

(4) How many comparisons does it take to find the item 9 or determine that the item is not in the tree?

(5) How many comparisons does it take to find the item 35 or determine that the item is not in the tree?

3. Multiple-Choice Questions (10%)

(1) A network connects all nodes to a single communication line that carries messages in both directions. The type of the networks is (A) Star topology (B) Bus topology (C) Ring topology (D) switched topology.

(2) A machine and its software serve as special gateway to protect a network form in appropriate access.　What are the machine and the software? (A) Repeaters (B) Routers (C) Firewalls (D) Domain name servers.

(3) A program designed to be embedded into an HTML document and transferred over the Web to someone is (A) XSL (B) Java Server Pages (C) DTD (D) Java Applets.

(4) In the digital signature method, the receiver users the _____ key to generate signatures on messages.　(A) skeleton (B) session (C) public (D) private.

(5) In the _____ method to synchronize the operation of the CPU with the I/O device, the CPU is idle until the I/O operation is finished. (A) programming I/O (B) Interrupt-driven I/O (C) DMA (D) Isolated I/O

4. If, in a paged memory management system, the frame size is 512 and the table for the currently executing process, please compute the physical addresses to the following logical addresses. (15%)

(a) <1, 401>　　　　　(b) <0, 85>　　　　　(c) <3, 514>

Page	0	1	2	3	4
Frame	7	10	30	1	4

◀ 注意背面尚有試題 ▶

淡江大學九十三學年度進修學士班轉學生招生考試試題 16-2

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5. You have a relation A as shown below. Show the resulting relation if you apply the following SQL statements: (10%)

　　select A1, A2
　　from A
　　where A2 ≥ 16

Relation A		
A1	A2	A3
1	12	100
2	16	102
3	16	103
4	19	104

6. Using the selection sort algorithm, manually sort the following list in increasing order and show your work in each pass: 14, 7, 23, 31, 40, 56, 78, 9, 2. (20%)

7. Given three IP addresses in dotted decimal notation (10%)
(A) 112.32.7.28　　　　　(B) 140.3.54.12 ,　　　　　　(C) 192.25.192.255
(1) Change these IP addresses from dotted decimal notation to binary notation.
(2) Determine the classes which these IP addresses belong to, respectively.