東吳大學九十五學年度碩士在職專班研究生招生考試試題

系級	資訊科學系碩士在職專班	考試時間	100 分鐘
科目	計算機概論	本科總分	100 分

第一部分： 選擇題 （每題4分）

1. Which of the following is the result of computing 0100 XOR 1100?
   A. 1000 B. 1011 C. 1100 D. 0111 E. None of the above.

2. Which of the following components of an operating system maintains the directory system?
   A. Device drivers   B. File manager   C. Memory manager
   D. Scheduler   E. None of the above.

3. Which layer of the TCP/IP hierarchy decides which application should receive an incoming message?
   A. Application   B. Transport   C. Network
   D. Link   E. None of the above.

4. Which of the following is a notational system for representing object-oriented designs?
   A. UML   B. Structure charts C. Modular designs
   D. Dataflow diagrams   E. None of the above.

5. Suppose a binary tree contained the nodes W, X, Y, and Z, and each node had at most one child. How many terminal nodes would be in the tree?
   A. One   B. Two   C. Three   D. Undetermined   E. None of the above.

6. Which of the following is a true statement?
   A. A single statement from a high-level program corresponds directly with a single machine-language instruction.
   B. Assemblers are used to translate high-level programs into machine language.
   C. High-level programs are transportable between machines.
   D. JAVA is a fourth-generation language.
   E. None of the above.

7. How many things can be represented by one byte?

   A. 64   B. 128   C.256   D. 32   E. None of the above.

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背面尚有試題

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8. Which of the following is the prefix form of the expression A*B/C+D/E-F*G

   A. -*+/*ABC/DEFG   B. -+/*ABC/DE*FG

   C. -+/*ABC/DE*FG   D. *+-*/ABC/DEFG

   E. None of the above.

9. Suppose a stack has the data contents ABCDEFG, where G is the top. What is the result in the stack after the following operations?

   Push H, Pop, Pop, Push X, pop, pop, Push Y,

   A. ABCDEYG   B. ABCDEFXH

   C. ABCEYH   D. ABCDEF   E. None of the above.

10. What is the printout of the following program?

   A. 5 3   B. 5 4   C. 6 4   D. 6 3   E. None of the above.

```
void what(int *x, int y)
{
    *x++;
    y++;
}
void main()
{
  int a,b;
  a=5; b=3;
  what(&a, b);
  printf("%d %d\n", a,b);
}
```

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第二部分： 配對題

1. Match each of the following terms with its corresponding definition. (12 分)

(a) CPU

(b) ALU

(c) RAM

(d) Program counter

(e) Bus

(f) Instruction set

(g) Registers

(h) DVD

    (1) A newer technology that can store large amounts of multimedia data.

    (2) CISC

    (3) Volatile memory

    (4) A combination of the arithmetic/logic unit and the control unit that interprets and executes instructions.

    (5) Cells in CPU for temporary storage of information.

    (6) The register that contains the address of the next instruction to be executed.

    (7) Performs arithmetic and logical operations

    (8) The register that contains the instruction currently being executed.

    (9) Connects hardware devices on the motherboard

    (10) High-speed memory locations in the CPU

2. Match each of the following terms with its corresponding definition. (12 分)

(a) Gateway

(b) IP address

(c) Virtual community

(d) HTML

(e) HTTP

(f) FTP

(g) Ping

(h) URL

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(1) A protocol to transfer of electronic mail.

(2) A group of people who share an interest and communicate via the Internet

(3) A program used to test whether a particular network computer is active and reachable.

(4) Internet identification composed of four numbers

(5) Interconnection between individual computers and Internet backbone

(6) Internet tool to copy files from one computer to another

(7) A network device that directs a packet between networks toward its final destination.

(8) Hypertext transfer protocol

(9) Web page address

(10) Language for creating Web pages

第三部分： 簡答題

1. Convert each of the following numbers. (16 分)

   (a) $11011000001_2 = (\ ?\ )_{10} = (\ ?\ )_{16}$

   (b) $268.75_{10} = (\ ?\ )_2 = (\ ?\ )_{16}$

2. What sequence of numbers would be printed if the following procedure were executed with the value of N being 0? (5分)

```
procedure xxx(N)
print the value of N;
if (N < 5) then (apply the procedure xxx to the value N + 2);
print the value of N
```

3. Write a complete program (in C++ or Java) to calculate the sum of the power series

   $$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} + .. \frac{1}{2^k} \text{ until } \frac{1}{2^k} < 10^{-5}. \quad (15分)$$