※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、選擇題 50 分(每題五分)

1. Which of the following mass storage system does not require physical motion?

    A. Magnetic tape　　　　B. Magnetic disk　　　　C. DVDs　　　　D. Flash drives

2. Which of the following is not involved in a context switch?

    A. Interrupt　　B. Process table　　C. Dispatcher　　　D. Shell

3. Which layer of the TCP/IP hierarchy reassembles messages as their pieces arrive at the destination?

    A. Application　B. Transport　　　C. Network　　　D. Link

4. The primary purpose of which of the following is not the enhancement of security?

    A. ICANN　　　B. Firewall　　　C. Encryption　　　D. CERT

5. Which of the following is a loop invariant at the point at which the test for termination is performed in the following loop structure?

    ```
    X ← 3;
    while (X < 5) do
       (X ← X + 2)
    ```

    A. X > 5　　　　B. X < 5　　　　C. X ≥ 5　　　　D. X ≤ 5

6. Which of the following is not associated with object-oriented programming?

    A. Inheritance　　B. Resolution　　C. Encapsulation　　　D. Polymorphism

編號： 232

國立成功大學 109 學年度碩士班招生考試試題

系　　所：會計學系

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7. Which of the following is the oldest approach to software development?

   A. Component architecture   B. Waterfall model
   C. Open-source development   D. Extreme programming

8. If the longest path in a binary tree contained exactly four nodes, what is the maximum number of nodes that could be in the entire tree?

   A. 4   B. 7   C. 15   D. 31

9. Given the relation X below

   X: A   B   C
       2   5   7
       3   3   3
       4   4   2
       5   2   8

   what value will be retrieved by the following query?

   ```
   TEMP ← SELECT from X where B = C
   RESULT ← PROJECT B from TEMP
   ```

   A. 2   B. 3   C. 4   D. 5

10. A memory system that is able to provide related information is called

    A. Read-only memory (ROM)   B. Associative memory
    C. An artificial neural network   D. Main memory

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二、非選擇題 50 分

1. (10 分)The table below represents a portion of a computer's main memory containing a binary tree. Each node consists of three cells, the first being data, the second being a pointer to the node's left child, and the third being a pointer to the node's right child. If the nil pointer is represented by 00 and the tree's root pointer contains 53, draw a picture of the tree showing the data in each node?

Address	Contents
50	AA
51	56
52	00
53	BB
54	00
55	50
56	CC
57	00
58	00

2. (10 分)For the database systems, given the three relations X, Y, and Z below

X:	A	B
	7	s
	3	z
	1	u

Y:	C	D
	t	4
	r	2

Z:	E	F
	2	w
	3	q

what values would be retrieved by executing the following statement?

```
select X.B, Y.C, Z.F
  from X, Y, Z
  where X.A > Y.D and X.A = Z.E
```

---

3. (10 分) Convert the following infix expression into:
   (a) Tree   (4 分)   (b) postfix   (3 分)   (c) prefix   (3 分)

$$A-B*(-C+-3.5)$$

4. (10 分) A(100) is an array of 4-byte real numbers. If the address of A(100) is $(1011)_{16}$, what is the address of　A(900) ?

5. (10 分) What sequence of numbers would be printed if the following procedure were executed with the value of N being 0?

```
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
```