國立成功大學

110學年度碩士班招生考試試題

編　號：232

系　所：會計學系

科　目：計算機概論

日　期：0203

節　次：第 2 節

備　註：不可使用計算機

※ 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 sorting techniques has the best time efficiency in the worse case ?

    A. Quicksort　　　　B. Heapsort　　　　C. Bubble sort　　　　D. Binary tree sort

2. Semaphore and monitor are control mechanisms dedicated for

    A. multiprocess computer system
    B. concurrent computer system
    C. distributed computer system
    D. network computer system

3. Using the 2's complement system to perform the addition of n-bit signed binary numbers', an overflow will possible occur

    A. under any condition
    B. when the operands are one positive and one negative
    C. when the operands are both positive only
    D. when the operands have the same sign

4. Turing machines represent

    A. an effort to define the limits of algorithmic systems.
    B. a class of machines that can compute very little.
    C. a class of machines that are now out of date and no longer important.
    D. a class of machines that can compute all functions.

5. If a stack contained the entries w, x, y, z (from top to bottom), which of the following would be the contents after two entries were removed and the entry r was inserted?

A. w, x, r　　　　　B. y, z, r　　　　　C. r, y, z　　　　　D. r, w, x

6. Which of the following is not associated with the concept of data type?

    A. Coercion　　　B. Boolean　　　C. Operator precedence　　　D. Strongly typed language

7. Which of the following is not a means of implementing server-side activities?

    A. CGI　　　　　B. JSP　　　　　C. ASP　　　　　D. Applets

8. Which of the following is a protocol for controlling the right to transmit a message in a network?

    A. UDP　　　　　B. CSMA/CD　　　　　C. TCP　　　　　D. FTP

9. Which of the following is not a way of representing algorithms?

    A. Stepwise refinement　　　B. Pseudocode　　　C. Flowchart　　　D. Programming language

10. Which of the following questions has not yet been answered by researchers?

    A. Is P contained in NP?
    B. Is NP contained in P?
    C. Are all the problems in NP solvable?
    D. Are all the problems in P solvable?

二、非選擇題 50 分

1. (10 分) Suppose the variables X and Y in the following Bare Bones program have the values 3 and 2, respectively, when execution begins. What will be the value of Z when the program terminates?

```
    clear Z;
    while X not 0 do;
        clear W;
        while Y not 0 do;
        decr Y;
        incr W;
      end;
      while W not 0 do;
        incr Z;
        incr Y;
        decr W;
      end;
      decr X;
      incr Z;
    end;
```

2. (8 分) Given the two relations X and Y below

X:	A	B	Y:	C	D
	7	s		t	1
	3	z		r	2
	1	u			

what values would be retrieved by executing the following statement?

```
    select X.A, X.B, Y.C
      from X, Y
      where X.A < Y.D
```

_____

3. (12 分) Suppose the abstract data type StackType was defined as follows:

```
define type StackType to be
{int StackEntries[20];
 int StackPointer = 0;
```

```
    procedure push(Value)
      {StackEntries[StackPointer] ← Value;
       StackPointer ← StackPointer + 1;
      }
    }
```

A. What would be the value of the variable StackPointer associated with Stack2 after executing the statements

    StackType Stack1, Stack2;
    Stack1.push(5);
    Stack2.push(6);
    Stack2.push(7);

    _____

B. What would be the value of StackEntries[0] associated with Stack1 after executing the statements in part A?

    _____

C. What would be the value of StackEntries[0] associated with Stack2 after executing the statements in part A?

    _____

4. (20 分) Suppose that the array A[-1:3 , 2:4, 1:4, -2:1] is to be arranged in row-major order, beginning in memory location b=200, and each element of A[*,*] requires C=5 words of storage. Identify the first memory location used for each of the following array elements.

    (a) A[-1,2,1,-2]
    (b) A[3,4,4,1]
    (c) A[3,2,1,0]
    (d) A[0,2,2,0]
    (e) A[1,3,3,1]