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：程　式　語　言

准帶項目請打「○」否則打「×」	
×	簡單型計算機

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本試題雙面印製

1. Consider the following program: (16%)

```
program P ;
   ...
   procedure A(x, y, z);
   begin
      y := y+1 ;
      z := z+x ;
   end
begin
   a := 1 ;
   b := 2 ;
   A(a+b, a, a) ;
   writeln(a)
end
```

What number would be printed by the above program using each of the following methods of parameter passing:

(a) call-by-value

(b) call-by-value-result

(c) call-by-reference

(d) call-by-name

2. Consider the two looping constructs: **while E do S** and **repeat S until E**. (30%)

(a) Draw the control flow diagram of **while E do S**.

(b) Draw the control flow diagram of **repeat S until E**.

(c) Describe the same points between **while** and **repeat**.

(d) Describe the differences between **while** and **repeat**.

(e) Rewrite: **while E do S**　　by using **repeat** construct.

(f) Rewrite: **repeat S until E**　by using **while** construct.

3. Compare *compilation* and *interpretation*. (24%)

(a) Describe how *compilation* and *interpretation* work.

(b) Describe the **differences** between *compilation* and *interpretation*.

(c) Describe the **advantages and disadvantages** of *compilation* and *interpretation*.

4. A *BNF* grammar is as follows. (20%)

```
<expression> ::=   <expression> + <term>
               |   <expression> - <term>
               |   <term>
     <term> ::=   <term> * <factor>
               |   <term> / <factor>
               |   <factor>
   <factor> ::=   number
               |   name
               |   '(' <expression> ')'
```

(a) Use *EBNF* to rewrite the grammar.

(b) Use *Syntax Chart* to represent the grammar.

◀ 注意背面尚有試題 ▶

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5. Consider the following program: (10%)

```
program main;
    var x : integer;
    procedure sub1;
        begin {sub1}
        writeln( 'x =', x)
        end; {sub1}
    procedure sub2;
        var x : integer;
        begin {sub2}
        x := 10;
        sub1
        end; {sub2}
    begin {main}
    x := 5;
    sub2
    end. {main}
```

(a) Under *static* scooping rules, what value of x is printed in procedure sub1?

(b) Under *dynamic* scooping rules, what value of x is printed in procedure sub1?