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VI Semester CSE A and B Section
15CSE311 Compiler Design

1. Given the code, Fill the static coordinate table (Just fill the no. and level no. starts from 1 inside P and the declarations previous to Program P should be assumed as 0):

```
Program P
var n:int;
Procedure W(var x:int)
begin
   x = x + 1;
   print x;
end
Procedure D
begin
  var n:int;
   n =3;
   W(n);
end
begin
     n=10;
     D;
end
```

	X	N
P	<{0},{0}>	<{1},{0}>
W	<{2},{0}>	<{1},{0}>
D	<{0},{0}>	<{2},{0}>

2. Given the code, Fill the dynamic coordinate table (Just fill the no. and level no. starts from 1 inside P and the declarations previous to Program P should be assumed as 0):

```
Program P
var n:int;
Procedure W(var x:int)
begin
   x = x + 1;
   print x;
```

```
end
Procedure D
begin
  var n:int;
   n =3;
   W(n);
end
begin
     n=10;
     D;
end
```

	X	N
P	<{0},{0}>	<{1},{0}>
W	<{3},{0}>	<{2},{0}>
D	<{0},{0}>	<{2},{0}>

3. Given the code, if the static scope is used, what is the output?

```
Program P
var n:int;
Procedure W(var x:int)
begin
   x = x + 1;
   print x;
end
Procedure D
begin
  var n:int;
   n =3;
   W(n);
end
begin
     n=10;
     D;
end
*4
11
3
10
```

4. Given the code, if the dynamic scope is used, what is the output?

```
Program P
var n:int;
Procedure W(var x:int)
begin
   x = x + 1;
   print n;
end
Procedure D
begin
  var n:int;
   n =3;
   W(n);
end
begin
     n=10;
     D;
end
```

*3
10
4
11

5. Fill in the blanks:
Given the code snippet and assume that the call by value is used, then the values of j, k, m and n respectively after execution are {2}, {4},{5} and {6}.

```
begin
int m :=1, n ;
proc p = (int j , int k ) int:
begin j := j + 1 ; m := m + k; return j + k; end;
n := p (m , m + 3)
end
```

6. Fill in the blanks:
Given the code snippet and assume that the call by reference is used, then the values of j, k, m and n respectively after execution are {6}, {4},{6} and {10}.

```
begin
int m :=1, n ;
proc p = (int j , int k ) int:
```

```
begin j := j + 1 ; m := m + k; return j + k; end;
n := p (m , m + 3)
end
```

7. Given the pseudo code, let **m** be the value printed under static scoping and **n** be the value printed under the dynamic scoping. Then **m** and **n** respectively are:

```
int i;
Program main( )
{
  i=20;
  f( );
}
Procedure f ( )
{
int i = 10;
g( );
}
Procedure g( )
{
print(i);
}
```

    10 and 20
  *20 and 10
   10 and 10
   20 and 20

8. Given the pseudo code, let **x** be the value printed under dynamic scoping and **y** be the value printed under the lexical scoping. Then **x** and **y** respectively are:

```
int i;
Program main( )
{
  i=25;
  f( );
}
Procedure f ( )
{
int i = 15;
g( );
}
Procedure g( )
{
print(i);
}
```

25 and 15
25 and 25
15 and 15
*15 and 25