Tutorial

Question 1.

```
int mul (Node root) {
    if (root == null) return 1;
    else root.val * mul(root.left)
                  * mul(root.right);
}
```

Rewrite the above function to short-circuit the traversal if **val** of a node in the binary tree is 0?

Question 2.

```
int increase(int x, int y) {
   x++;
   y++;
}
void main() {
   int a[] = {2,1,0},i = 0;
   increase(i,a[i]);
   cout << i << a[0] << a[1] << a[2];
}
```

What are the values printed out when:

A. x,y are passed by value

B. x,y are passed by value-result

C. x,y are passed by reference

D. x,y are passed by name

Question 3.

```
type VECT = array [1..3] of integer;
   VECTPTR = ^VECT;
procedure SUB1;
var  A, B: VECT;
P, Q: VECTPTR;
begin
A[1] := 7; A[2] := 8; A[3] := 9;
B[1] := 7; B[2] := 8; B[3] := 9;
```

```
P := @A; Q := @B;
SUB2(P, Q);
end;
procedure SUB2(R: VECTPTR;var S: VECTPTR);
begin
        R^[1] := R^[1] + 10;//1
        S^[1] := S^[1] + 10;//2
        if ... then R := S;//3
                  else S := R;//4
end;
```

Which is **object** changed by the following assignment and what is the value assigned?

A. at line //1

B. at line //2

C. at line //3

D. at line //4

Question 4.

```
n := 5;
for i := 1 to n do begin
          n := n + 1;
          i := i - 1;
end
```

How many iterations does the for loop perform when?

A. expr2 is protected

B. index is protected

C. no protect

D. both index and expr2 are protected