

DQE--Fall 2007—Languages (Practice)

1. (50 points)

Given the following pseudo-code procedure:

```
proc switch(x,y : integer) {  
    proc f() : integer {  
        var x : integer;  
        begin  
            z := x;  
            x:= y;  
            return z;  
        end proc f;  
        begin  
            y := f()  
        end proc switch;
```

Describe the effect of the procedure call `switch(i, a[i])` using each of the following parameter passing methods:

- * call-by-value
- * call-by-reference
- * call-by-value-result
- * call-by-name

2. (50 points)

Consider the following grammar:

S -> A
A -> A + A | B ++
B -> y

- (a) Draw the parse tree for the input "y + + + y + +

(b) Complete the table below tracing an LR(1) parse of the input above.
The "stack" column shows the stack (with the top at the right); the
"input" column shows the unprocessed input and the "action" column
shows which action (shift, reduce, or accept) the parser performs.

| Stack | | Input | | Action |
|-------|--|-------|--|--------|
| | | | | |