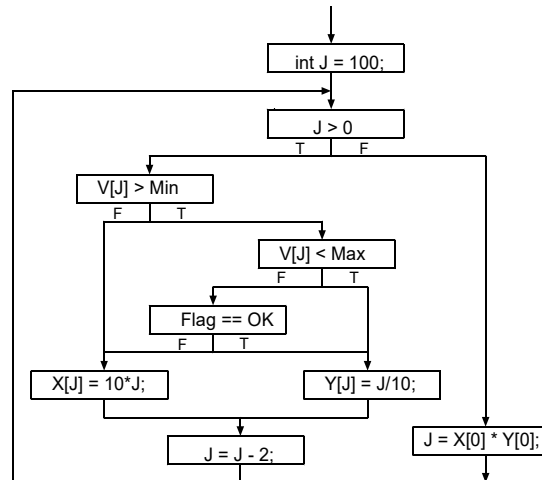


Problem FC-9 (3 parts)**Compound Logical Predicates**

Part A: Write the C code fragment that corresponds to this control flow graph. Use the appropriate looping construct. Where possible, compress nested if-then-else constructs into a flat if-then-else using compound logical predicates.



```
for (J=100; J > 0; J -= 2)
    if (V[J] > Min && (V[J] < Max || Flag == OK))
        Y[J] = J / 10;
    else
        X[J] = 10 * J;
    J = X[0] * Y[0];
```

Part B: Write a single C statement that corresponds to the following MIPS code. Assume \$1 holds A, \$2 holds B, \$3 holds C, and \$4 holds D. *Do not use an if-then-else.*

```
addi $4, $0, 0
bne $3, $0, Set
beq $1, $0, Continue
beq $2, $0, Continue
Set: addi $4, $0, 1
Continue: ...
```

```
D = C || (A && B);
```

Part C: Turn this nested if-then-else statement into a flat compound predicate if-then-else statement which uses only basic operators (such as == and !=) and logical && and || operators.

```
if P
    if Q
        A;
    else if R
        if S
            A;
        else B;
    else B;
else B;
```

```
if (P && (Q || (R && S)))
    A;
else B;
```