

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COMPUTER ENGINEERING DEPARTMENT

COE 308-01, Term 982

Homework #5

SOLUTION

(a) Total number of cycles = $5 * (2 + 3*2 + 2) = 50$ cycles.

(b)

```

I1 1 2 3 4 5
I2 1 2 3 4 5
I3   1 2       3 4 5
I4    1       2 3 4 5
I3     1 2 3 4 5
I4      1 2 3 4 5
I3       1 2 3 4 5
I4        1 2 3 4 5
I5         1 2 3 4 5
I6          1 2       3 4 5
    
```

TOTAL = 27 cycles. Improvement = $50 / 27 = 1.85$ or 85%.

(c)

```

I1 1 2 3 4 5
I2 1 2 3 4 5
I3   1 2 3 4 5
I4    1 2 3 4 5
I3     1 2 3 4 5
I4      1 2 3 4 5
I3       1 2 3 4 5
I4        1 2 3 4 5
I5         1 2 3 4 5
I6          1 2 3 4 5
    
```

TOTAL = 23 cycles. Improvement over a) = $50 / 23$ or 218%.

(d)

```

I1 1 2 3 4 5
I2 1 2 3 4 5
I3   1 2 3 4 5
I4    1 2 3 4 5
I3     1 2 3 4 5
I4      1 2 3 4 5
I3       1 2 3 4 5
I4        1 2 3 4 5
I5         1 2 3 4 5
I6          1 2 3 4 5
    
```

TOTAL = 19 cycles. Improvement over a) = $50 / 19$ or 263%.