**1 a**. v8---0---v7---0---v5---0---v3---0---v6---0---v9

**b**. v6---0---v9---0---v1---0---v7---0---v5---0---v3

**2 a**. Invalid because minimum cost of v2---v1 passes through v1 itself. We cannot get to a destination through a destination.

**b**. Valid because v1---0---v2---0---v3

v2---0---v3---0---v1

**c**. Invalid because it is kind of like infinity between v1---v2---v3

**d**. Invalid because diagonal has to be all 0’s and v3 to v3 is 2.

**3 a.** (A1(A2(A3 A4)))(((A5 A6)A7)A8)

**b.** (A2 A3)((A4 A5)(A6 A7))

**4.** M[1][5] = 592

P[1][5] = 2

When k = 2, the result was 592 which was lowest within all.

M[1][1] = 660

M[1][2] = 592

M[1][3] = 792

M[1][4] = 600

**5.** Amount is 19 cents

Three denominations are 1 cent, 9 cent, and 15 cent.

15 15 9 9 9 1 1 1 1 1 1

Greedy would take 15, 1, 1, 1, 1 (5 coins)

But Optimal would take 9, 9, 1 (3 coins)