(a) n(n-1) / 2

(b) n! = n(n-1)(n-2)...1

(c) (i) length = 1.1 + 1.4 + 0.5 = 3.0

(ii) 1. W-M-S-E
length = 1.1 + 0.9 + 0.5 = 2.5
2. S-M-E-W
length = 0.9 + 1.4 + 0.6 = 2.9
3. W-S-E-M
length = 0.7 + 0.5 + 1.4 = 2.6
4. W-E-M-S
length = 0.6 + 1.4 + 0.9 = 2.9
5. M-W-E-S
length = 1.1 + 0.6 + 0.5 = 2.2
6. E-M-W-S
length = 1.4 + 1.1 + 0.7 = 3.2

(iii) the next state is <M-W-E-S>

(iv) the neighbors of <M-W-E-S> are
1. W-M-E-S
length = 1.1 + 1.4 + 0.5 = 3.0
2. E-W-M-S
length = 0.6 + 1.1 + 0.9 = 2.6
3. S-W-E-M
length = 0.7 + 0.6 + 1.4 = 2.7
4. M-E-W-S
length = 1.4 + 0.6 + 0.7 = 2.7
5. M-S-E-W
length = 0.9 + 0.5 + 0.6 = 2.0
6. M-W-S-E
length = 1.1 + 0.7 + 0.5 = 2.3

the next state reached by hill-climbing is <M-S-E-W>
the neighbors of <M-S-E-W> are
1. S-M-E-W
length = 0.9 + 1.4 + 0.6 = 2.9
2. W-S-E-M
length = 0.7 + 0.5 + 1.4 = 2.6
3. M-E-S-W
length = 1.4 + 0.5 + 0.7 = 2.6
4. E-S-M-W
length = 0.5 + 0.9 + 1.1 = 2.5

5. M-S-W-E

    length = 0.9 + 0.7 + 0.6 = 2.2

6. M-W-E-S

    length = 1.1 + 0.6 + 0.5 = 2.2

Since there are no neighbors having less length than <M-S-E-W> (2.0), the algorithm terminates.

The sequence of states found is <W-M-E-S> - <M-W-E-S> - <M-S-E-W> and the tour length associated with the final state is 2.0.