#include <stdio.h>

#include <limits.h>

#define MAX 9999

int n = 4;

int distan[20][20] = {

{0, 22, 26, 30},

{30, 0, 45, 35},

{25, 45, 0, 60},

{30, 35, 40, 0}};

int DP[32][8];

int TSP(int mark, int position) {

int completed\_visit = (1 << n) - 1;

if (mark == completed\_visit) {

return distan[position][0];

}

if (DP[mark][position] != -1) {

return DP[mark][position];

}

int answer = MAX;

for (int city = 0; city < n; city++) {

if ((mark & (1 << city)) == 0) {

int newAnswer = distan[position][city] + TSP(mark | (1 << city), city);

answer = (answer < newAnswer) ? answer : newAnswer;

}

}

return DP[mark][position] = answer;

}

int main() {

for (int i = 0; i < (1 << n); i++) {

for (int j = 0; j < n; j++) {

DP[i][j] = -1;

}

}

printf("Minimum Distance Travelled -> %d\n", TSP(1, 0));

return 0;

}