Example of using Quine-McCluskey and Petrick's Method:

Find all minimum sum-of-products solutions for

f = SUM m(2, 5, 6, 11, 12, 14, 15) + SUM d(0, 3, 4)

INCLUDE DON'T CARES FOR NEXT STEP!

```
 0  0000            0,2  00-0         0,2,4,6  0--0
 --------           0,4  0-00         0,4,2,6  0--0
 2  0010            -----------       ---------------
 4  0100            2,3  001-      4,6,12,14  -1-0
 --------           2,6  0-10      4,12,6,14  -1-0
 3  0011            4,5  010-
 5  0101            4,6  01-0
 6  0110            4,12 -100
12  1100            3,11 -011
 --------           6,14 -110
11  1011            12,14 11-0
14  1110            -----------
 --------           11,15 1-11
15  1111            14,15 111-
```

DO NOT INCLUDE DON'T CARES FOR PRIME IMPLICANT CHART!

```
                       | 2  5  6  11  12  14  15
    -----------------+-------------------------
K        2,3   a'b'c | X
         4,5   a'bc' |    X                        essential
L        3,11  b'cd  |       X
M       11,15  acd   |       X           X
N       14,15  abc   |               X   X
P    0,2,4,6   a'd'  | X    X
     4,6,12,14 bd'   |    X        X   X           essential
```

```
                      +-------------------------------+
(K + P)(L + M)(M + N) |Note: For Petrick's Method use |
                      |      (X + Y)(X + Z) = X + YZ   |
(K + P)(M + LN)       |               and             |
                      |          X + XY = X           |
KM + KLN + MP + LNP   |      to reduce the equation.   |
                      +-------------------------------+
```

Choose MP because it has fewest terms and fewest number of literals.
(Notice KM uses more literals than MP !)

SOLUTION IS ESSENTIAL PRIME IMPLICANTS PLUS PETRICK'S METHOD TERMS!

f = a'bc' + bd' + acd + a'd'