## K-map for CBSE 2019 6.D

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### 1 Question

Reduce the following Boolean expression to its simplest form using K-map:

$$F(P,Q,R,S) = \sum_{i=0}^{\infty} (0,1,2,3,5,6,7,10,14,15)$$
 (1)

#### 2 Boolean equation - SOP form

$$F = \overline{P}Q + R\overline{S} + \overline{P}S + QR \tag{2}$$

### 3 K-Map

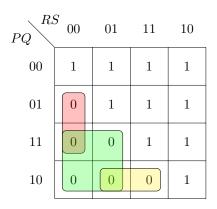


Figure 1: K-map for eq.(2)

# 4 Boolean Equation - POS form

We can derive the following POS from the above K-map

$$F = (\overline{P} + R)(\overline{Q} + R + S)(\overline{P} + Q + \overline{S})$$
 (3)