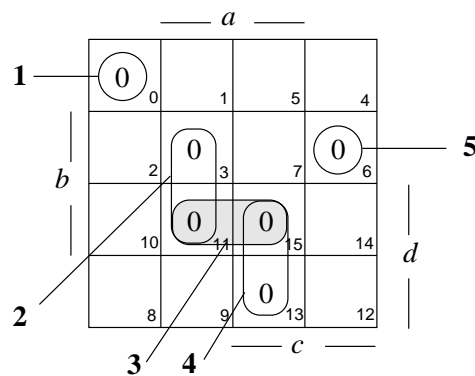




Lösung 1

1. KV-Diagramm:



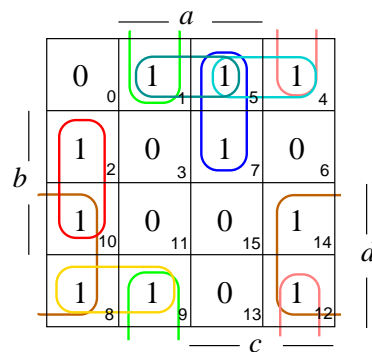
Die Primimplikate sind:

1. $(d \vee c \vee b \vee a)$ 2. $(c \vee \bar{b} \vee \bar{a})$ 3. $(\bar{d} \vee \bar{b} \vee \bar{a})$ 4. $(\bar{d} \vee \bar{c} \vee \bar{a})$
5. $(d \vee \bar{c} \vee \bar{b} \vee a)$

2. Konjunktive Minimalformen: es existiert nur eine KMF und sie lautet:

$$\begin{aligned} y_{KMF} &= \mathbf{1} \wedge \mathbf{2} \wedge \mathbf{4} \wedge \mathbf{5} \\ &= (d \vee c \vee b \vee a) \wedge (c \vee \bar{b} \vee \bar{a}) \wedge (\bar{d} \vee \bar{c} \vee \bar{a}) \wedge (d \vee \bar{c} \vee \bar{b} \vee a) \end{aligned}$$

3. KV-Diagramm:



Die Primimplikanten sind:

$$\begin{array}{l} \bar{d} \bar{b} a \\ \bar{c} b \bar{a} \end{array}$$

$$\begin{array}{l} \bar{c} \bar{b} a \\ d \bar{c} \bar{b} \end{array}$$

$$\begin{array}{l} \bar{d} c \bar{b} \\ \bar{d} c a \end{array}$$

$$\begin{array}{l} c \bar{b} \bar{a} \\ d \bar{a} \end{array}$$

4. Disjunktive Minimalformen:

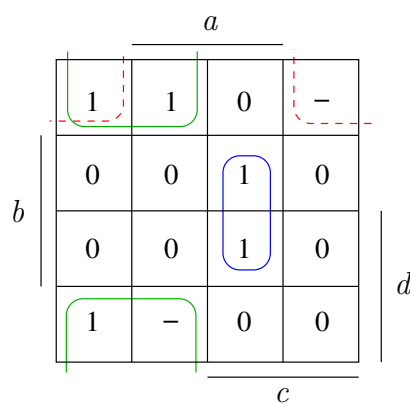
$$f_{DMF_1} = \bar{c} \bar{b} a \vee \bar{d} c \bar{b} \vee \bar{c} b \bar{a} \vee \bar{d} c a \vee d \bar{a}$$

$$f_{DMF_2} = \bar{c} \bar{b} a \vee c \bar{b} \bar{a} \vee \bar{c} b \bar{a} \vee \bar{d} c a \vee d \bar{a}$$

Lösung 2

1. DMF:

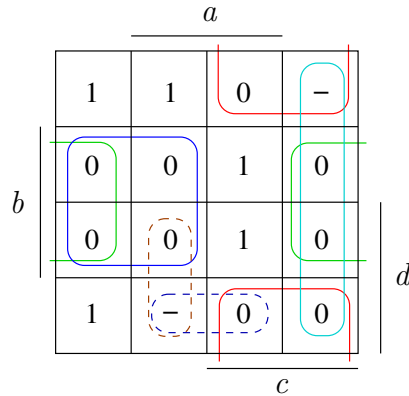
$$y_{DMF} = c b a \vee \bar{c} \bar{b}$$



2. KMF:

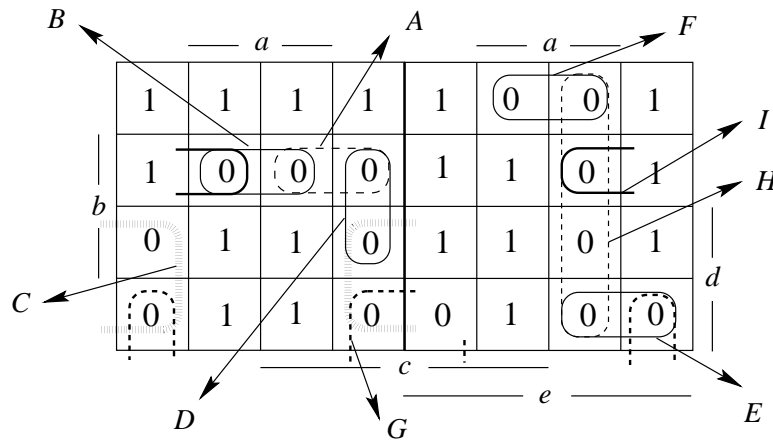
$$y_{KMF} = (c \vee \bar{b}) \cdot (\bar{c} \vee b) \cdot (\bar{b} \vee a) \quad \text{oder}$$

$$y_{KMF} = (c \vee \bar{b}) \cdot (\bar{c} \vee b) \cdot (\bar{c} \vee a)$$



Lösung 3

1. KV-Diagramm:



2. Primimplikate:

$$A: (e \vee d \vee \bar{c} \vee \bar{b})$$

$$F: (\bar{e} \vee d \vee b \vee \bar{a})$$

$$B: (e \vee d \vee \bar{b} \vee \bar{a})$$

$$G: (\bar{d} \vee b \vee a)$$

$$C: (e \vee \bar{d} \vee a)$$

$$H: (\bar{e} \vee c \vee \bar{a})$$

$$D: (e \vee \bar{c} \vee \bar{b} \vee a)$$

$$I: (d \vee c \vee \bar{b} \vee \bar{a})$$

$$E: (\bar{e} \vee \bar{d} \vee c \vee b)$$

3. Kernprimimplikate: C, F, G, H. Wahlprimimplikate: A, B, D, I.
Entbehrliche Primimplikate: E

4. Es gibt 3 KMF:

$$a) \quad y' = C \wedge F \wedge G \wedge H \wedge I \wedge A$$

$$b) \quad y' = C \wedge F \wedge G \wedge H \wedge B \wedge A$$

$$b) \quad y' = C \wedge F \wedge G \wedge H \wedge B \wedge D$$