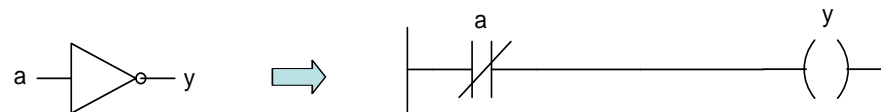
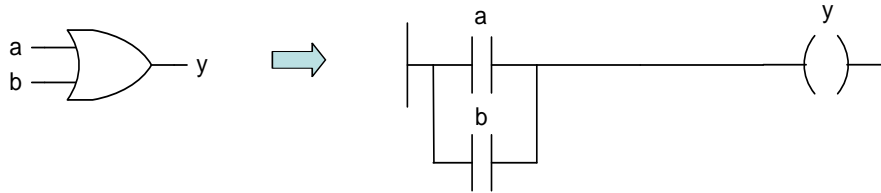
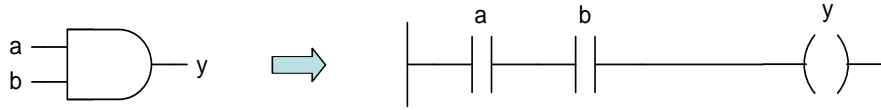
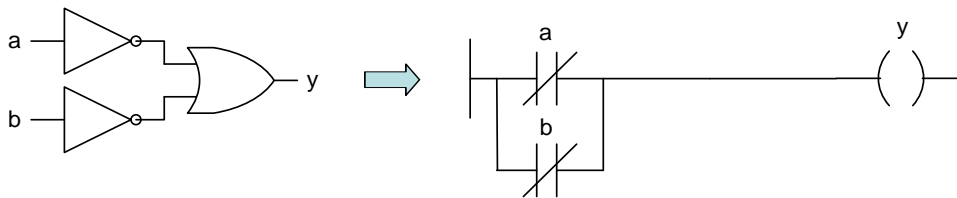
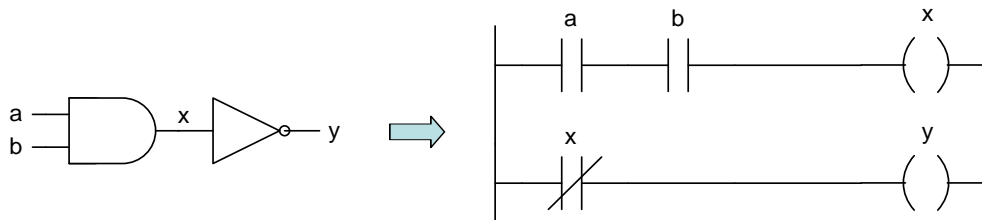
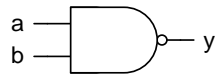


Logičke operacije u leder jeziku

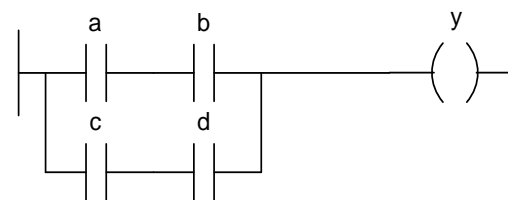
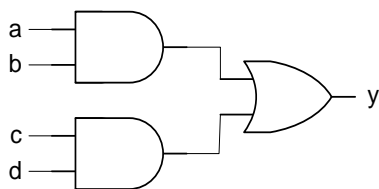
I, ILI, NE



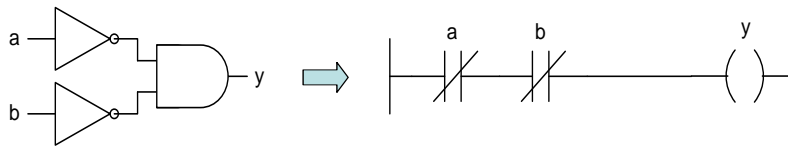
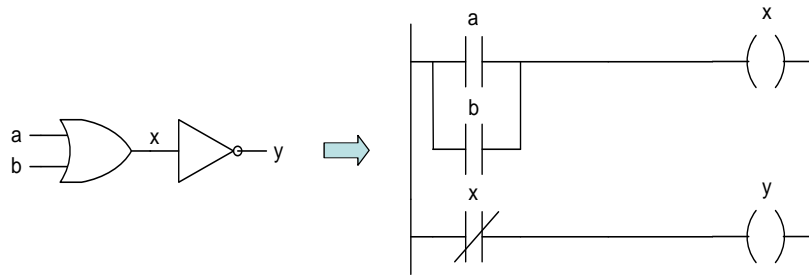
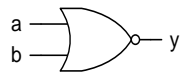
Ni



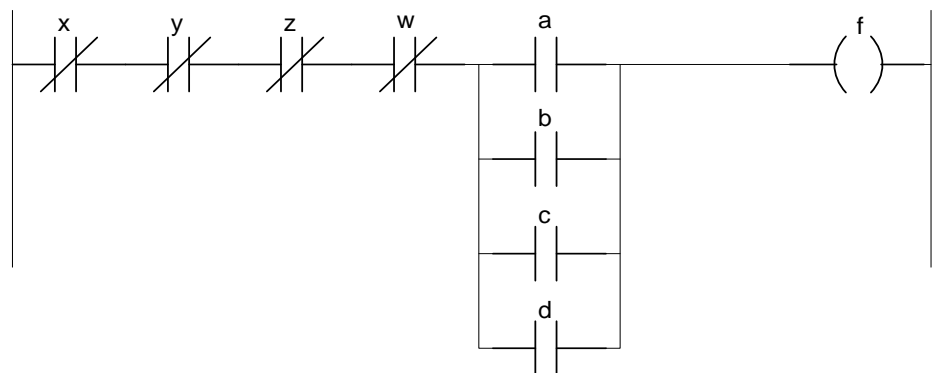
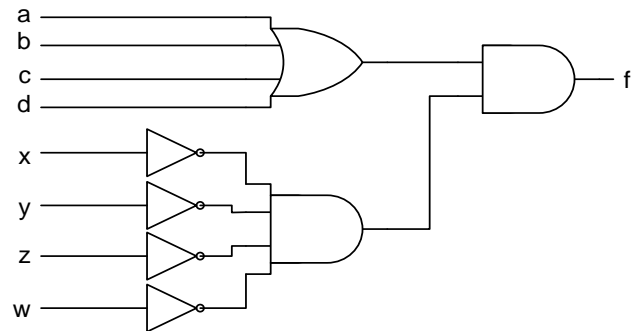
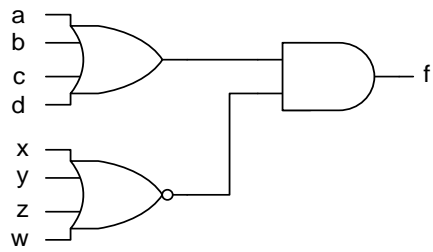
I-ILI



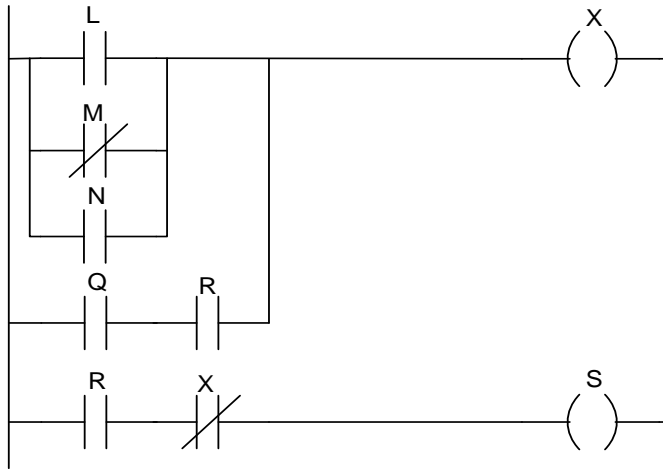
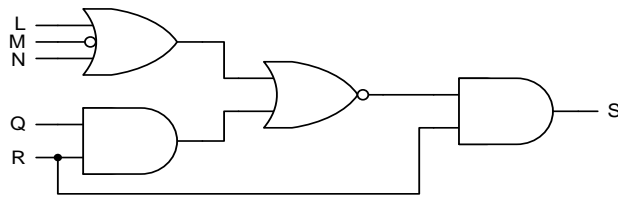
NILI



Kombinaciona mreža

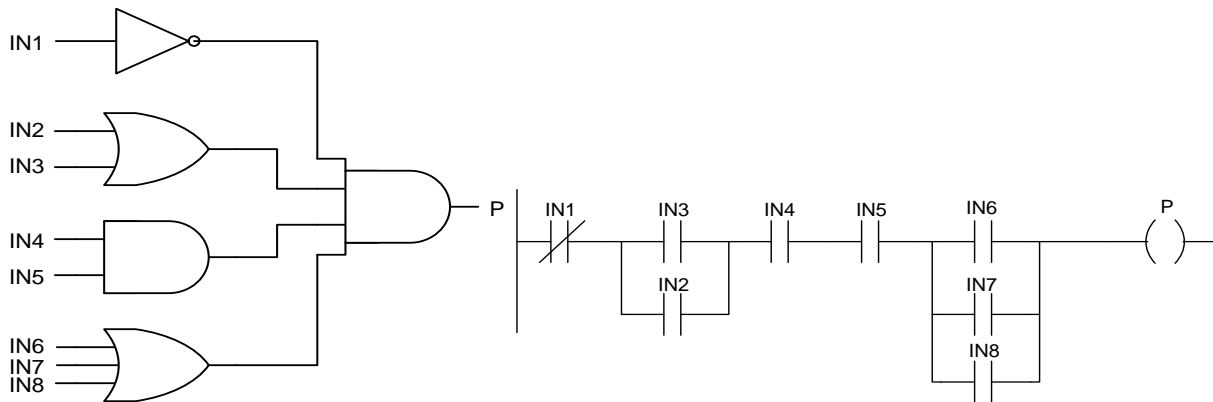


Primer 1 Konvertovati logicki dijagram sa slike u leder dijagram.

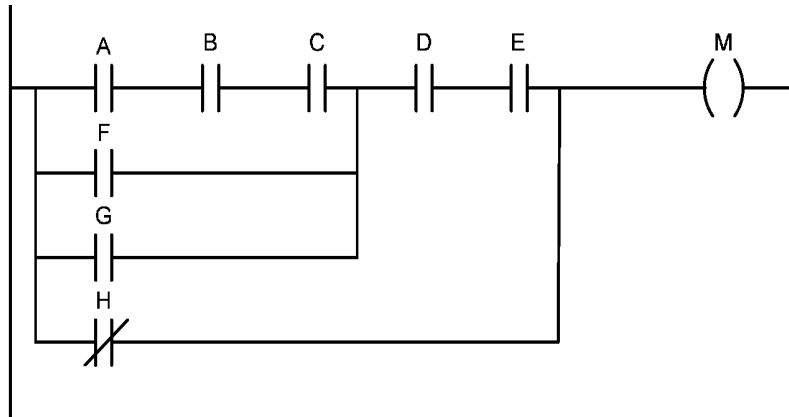


Primer 2. Ventilator procesora radi ako su ispunjeni sledeći uslovi:

1. Ulaz 1 je isključen (OFF)
2. Uključen je ulaz 2 ili ulaz 3 (ili oba)
3. Ulazi 4 i 5 su uključeni
4. Uključen je barem jedan od ulaza 6, 7 i 8.

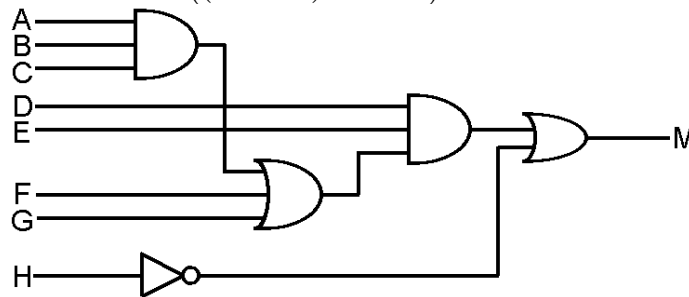


Primer 3. Konvertovati leder dijagram sa slike u odgovarajući logički dijagram.

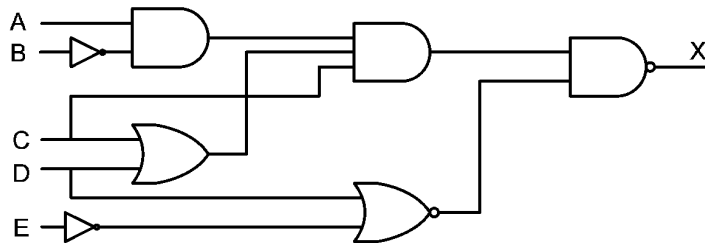


Resenje:

$$M = ((A \cdot B \cdot C) + F + G) \cdot D \cdot E + \bar{H}$$

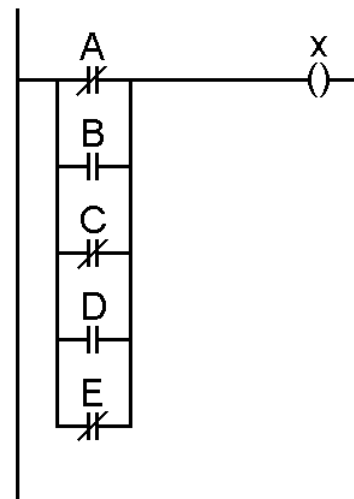


Primer 4. Konvertovati logički dijagram sa slike u leder dijagram.



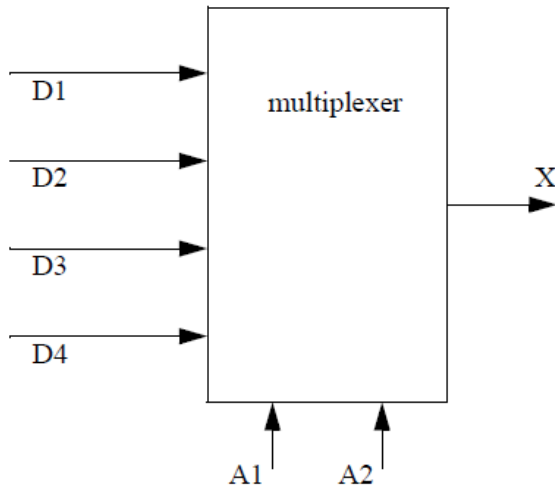
Resenje:

$$\begin{aligned} x &= \overline{\overline{\overline{((A \cdot \bar{B}) \cdot C \cdot (C + D)) \cdot (D + \bar{E})}}} \\ &= \overline{\overline{((A \cdot \bar{B}) \cdot C \cdot (C + D)) \cdot (\bar{D} \cdot E)}} \\ &= \overline{A \cdot \bar{B} \cdot C \cdot (C + D) \cdot \bar{D} \cdot E} \\ &= \overline{\bar{A} + B + \bar{E} + C \cdot (C + D) \cdot \bar{D}} \\ &= \overline{\bar{A} + B + \bar{E} + C \cdot \bar{D}} \\ &= \overline{\bar{A} + B + \bar{C} + D + \bar{E}} \end{aligned}$$



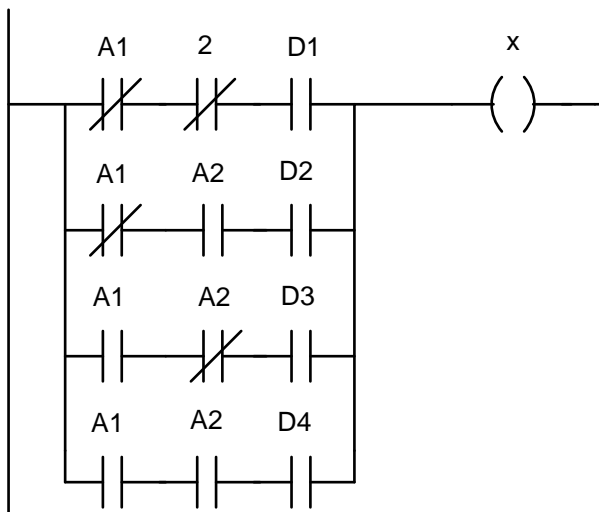
Primer 5. Multiplekser

Realizovati multiplekser 4 u 1 pomoću leder dijagrama.



A1	A2	X
0	0	X=D1
0	1	X=D2
1	0	X=D3
1	1	X=D4

Odgovarajući leder dijagram bi bio:



Primer 6. Rerna ima dve pregrade i u svakoj pregradi može da zagreva jednu posudu. Kad se uključi grejač, obezbeđuje dovoljno toplote da zagreje obe pregrade. Ipak, ako se stavi samo jedna posuda, moguće je da se rerna pregreje, tako da je potrebno da se uključi ventilator, kad rerna pređe određenu temperaturu.

Uslov za uključenje fena: ako pređena određena temperatura i prisutna je samo jedna posuda, uključiti ventilator.

Ulazi i izlazi:

- B1 – prisutna posuda u prvoj pregradi
- B2 – prisutna posuda u drugoj pregradi

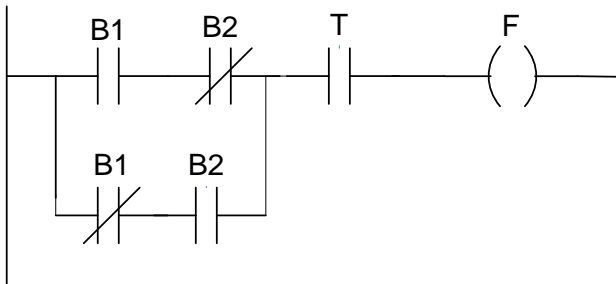
- F – ventilator
- T – senzor prekoračenja temperature

Bulove jednačine:

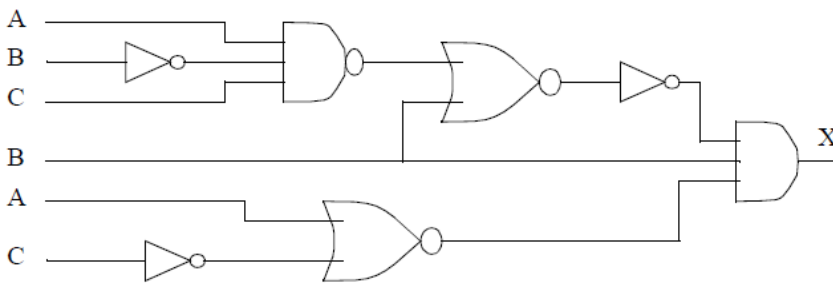
$$F = T \cdot (B_1 \oplus B_2)$$

$$F = T \cdot (B_1 \cdot \overline{B_2} + \overline{B_1} \cdot B_2)$$

Leder dijagram:



Primer 7. Konvertovati logički dijagram sa slike u leder dijagram



Na osnovu slike pišemo bulove jednačine i pojednostavimo ih:

$$X = \overline{\overline{(A \cdot \overline{B} \cdot C) + B}} \cdot \overline{B \cdot (A + C)}$$

$$X = (\overline{A} + B + \overline{C} + B) \cdot B \cdot (\overline{A} \cdot C)$$

$$X = \overline{A} \cdot B \cdot \overline{A} \cdot C + B \cdot B \cdot \overline{A} \cdot C + \overline{C} \cdot B \cdot \overline{A} \cdot C + B \cdot B \cdot \overline{A} \cdot C$$

$$X = B \cdot \overline{A} \cdot C + B \cdot \overline{A} \cdot C + 0 + B \cdot \overline{A} \cdot C$$

$$X = B \cdot \overline{A} \cdot C$$

Ekvivalentan leder dijagram je:

