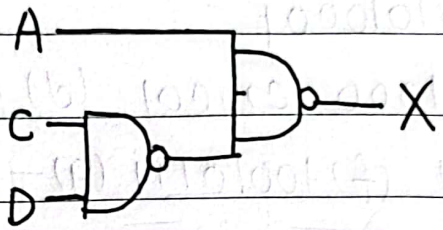
2. (a) $\bar{A} + \bar{A}B + AC$

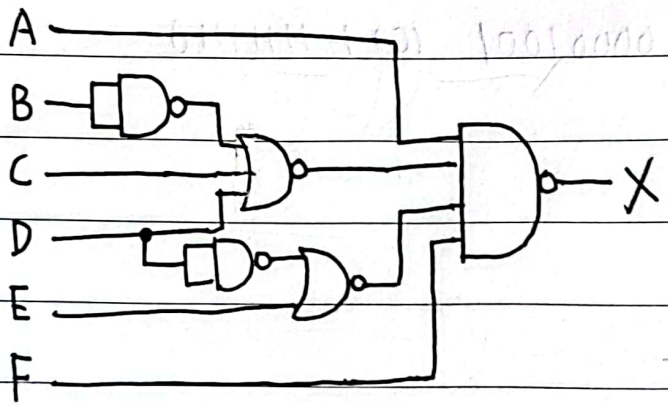
(b) $\overline{\bar{A}B + \bar{A}CD}$

7. $\overline{\bar{A}B + A\bar{B}} = (A+\bar{B}) \cdot (\bar{A}+B)$

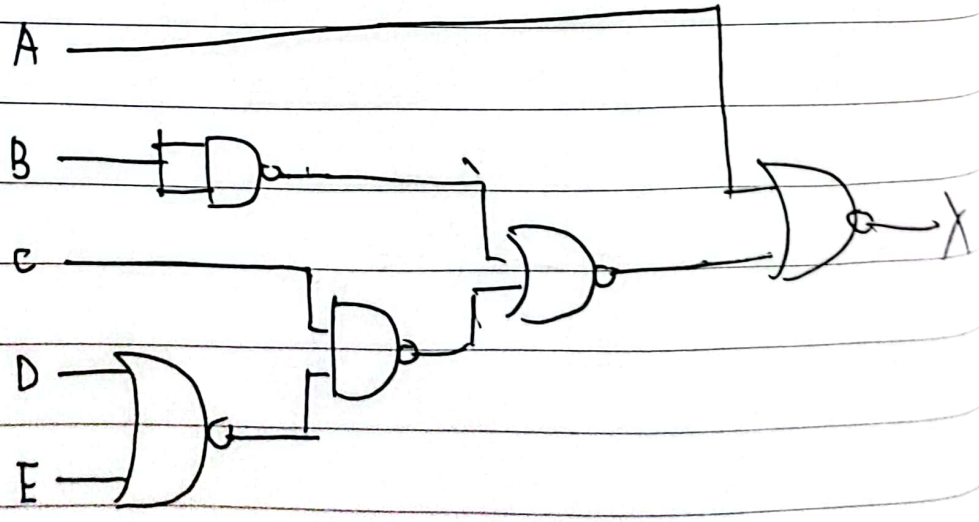
12. (a) $X = \bar{A} + CD$



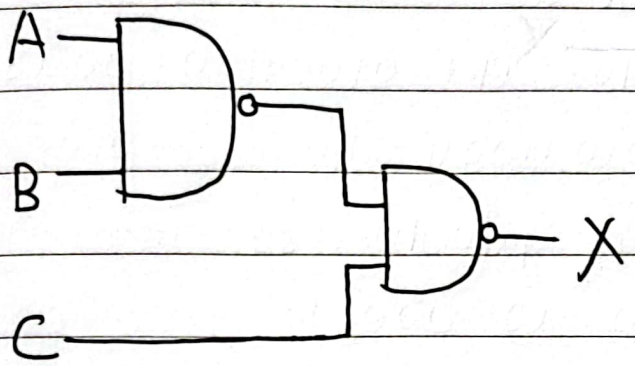
(b) $X = \bar{A} + B\bar{C}\bar{D} + D\bar{E} + \bar{F}$



(c)

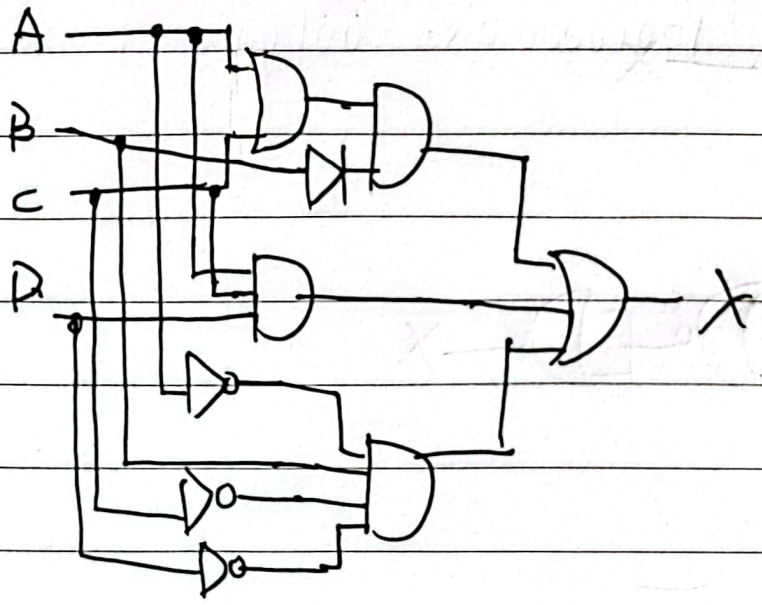


14. $X = \bar{C} + AB$

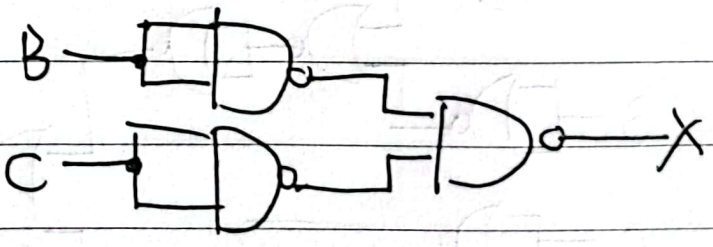


$X = A\bar{B} + \bar{B}C + ACD + \bar{A}B\bar{C}\bar{D}$

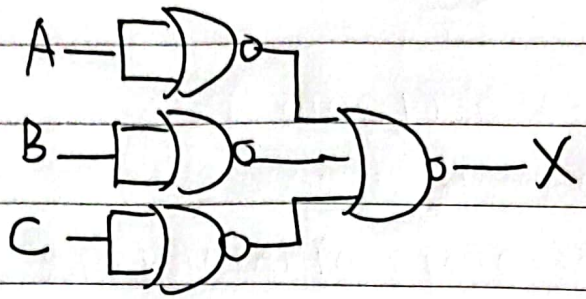
$= \bar{B}(A+C) + ACD + \bar{A}B\bar{C}\bar{D}$



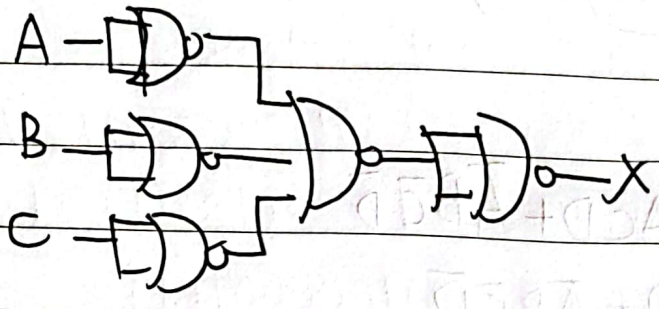
24. $X = \overline{B+C}$



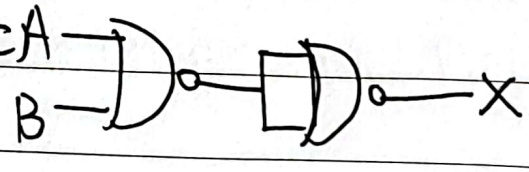
24. (a)



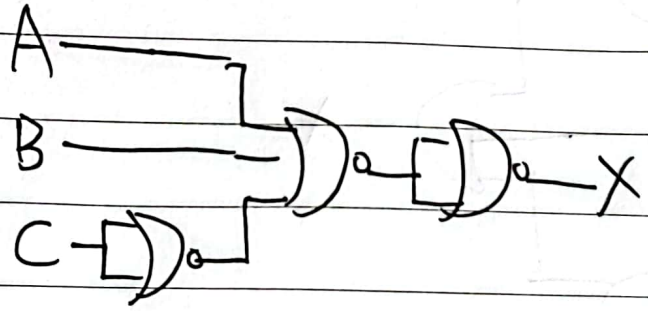
(b)



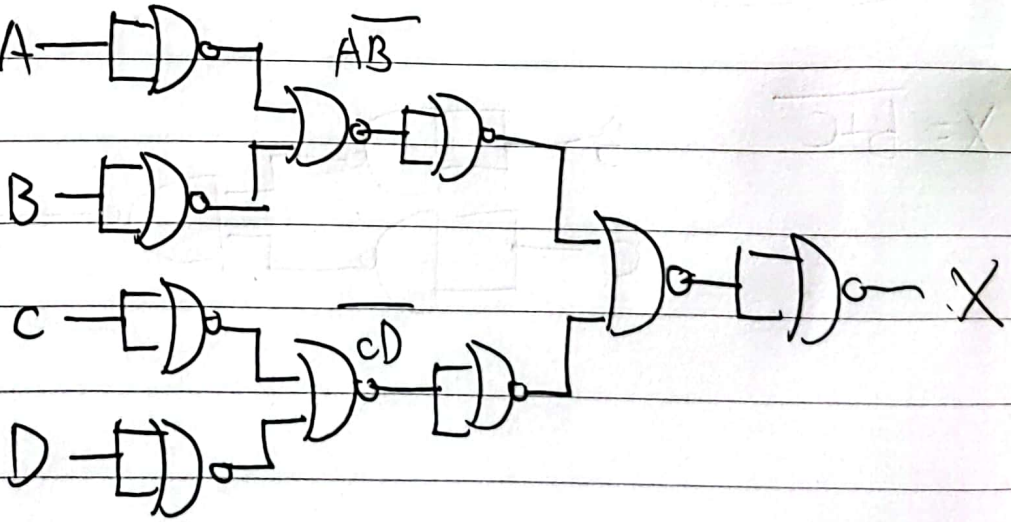
(c)



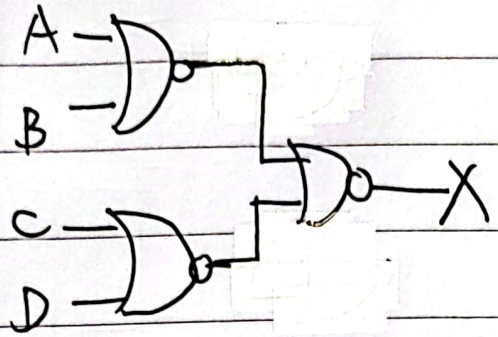
(d)



(e)



(f)



(g) $X = AB\overline{CDE} = \overline{\overline{AB} + CDE}$