

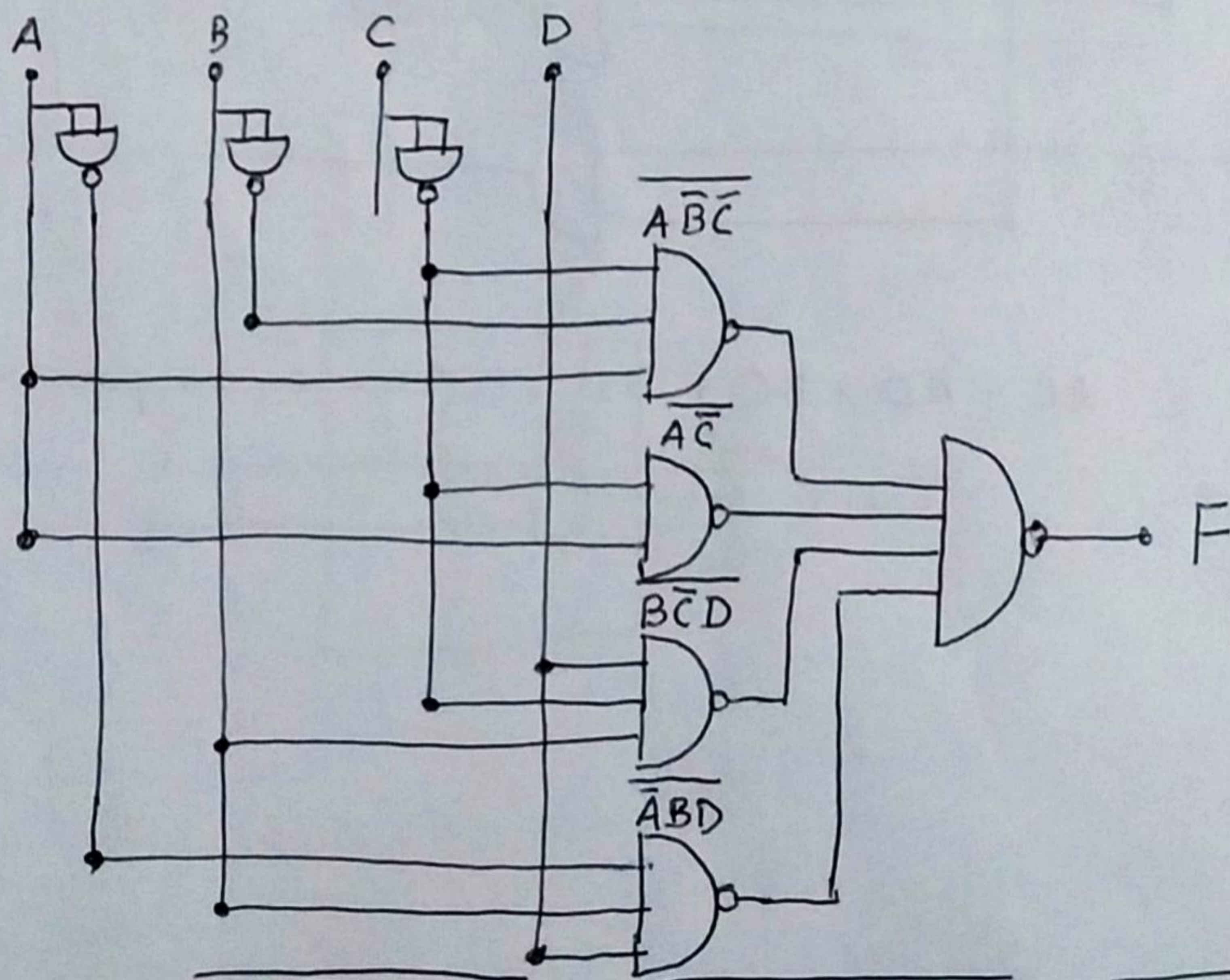
(2B)

$$\begin{aligned}
 a) \quad Y &= \overline{(A+B)\bar{C} + \bar{A}\bar{B}C} \\
 &= \overline{A\bar{C} + B\bar{C} + \bar{A}\bar{B}C} = \overline{A\bar{C}} \cdot \overline{B\bar{C}} \cdot \overline{\bar{A}\bar{B}C} \\
 &= (\bar{A} + C)(\bar{B} + C)(A + B + \bar{C}) \\
 &= (\bar{A}\bar{B} + \bar{A}C + \bar{B}C + C)(A + B + \bar{C}) \\
 &= (\bar{A}\bar{B} + \bar{A}C + C(1 + \bar{B}))(A + B + \bar{C}) \\
 &= (\bar{A}\bar{B} + \bar{A}C + C)(A + B + \bar{C}) \\
 &= (\bar{A}\bar{B} + C(1 + A))(A + B + \bar{C}) \\
 &= (\bar{A}\bar{B} + C)(A + B + \bar{C}) \\
 &= \underbrace{\bar{A}\bar{B}A}_x + \underbrace{\bar{A}\bar{B}B}_x + \bar{A}\bar{B}\bar{C} + AC + BC + C\bar{C}_x \\
 &= \bar{A}\bar{B}\bar{C} + AC + BC
 \end{aligned}$$

$$b) \quad F = A\bar{B}\bar{C} + A\bar{C} + B\bar{C}D + \bar{A}BD$$

Circuito com portas NAND

$$F = \overline{\overline{F}} = \overline{A\bar{B}\bar{C} + A\bar{C} + B\bar{C}D + \bar{A}BD} = \overline{A\bar{B}\bar{C}} \cdot \overline{A\bar{C}} \cdot \overline{B\bar{C}D} \cdot \overline{\bar{A}BD}$$



$$\begin{aligned}
 c) \quad Y &= \overline{\overline{AB} \cdot C} + \overline{CD} = AB + \bar{C} + \bar{C} + \bar{D} = AB + \bar{C} + \bar{D} \\
 &= \overline{\overline{AB} \cdot \bar{C} \cdot \bar{D}} = (\bar{A} + \bar{B})CD = \bar{A}CD + \bar{B}CD
 \end{aligned}$$