1. 1. $f = \bar{B} + C$ 4. $f = xyz + \bar{x}\bar{z}$
    2. $f = \bar{A} + C$ 5. $f = \bar{x} + y + x\bar{z}$
    3. $f = \bar{x} + y\bar{z}$ 6. $f = \bar{A}B + \bar{A}D$

2. 1. $f = \bar{A}BC + A\bar{B}C + AB\bar{C}$ 5. $f = AB\bar{D} + CD + BC$
    2. $f = (A \oplus B)(C \oplus D)$ 6. $f = \bar{A}BC\bar{D} + AB\bar{D} + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}D + \bar{C}D + AD$
    3. $f = A + B$ 7. $f = \bar{A}BD + B\bar{C}D + AC\bar{D} + A\bar{B}C + \bar{A}\bar{C} + \bar{B}\bar{D}$
    4. $f = A\bar{B} + B\bar{C} \quad f = A\bar{B} + B\bar{C}$

3. 1. $f = A\bar{C} + \bar{B}\bar{D} + \bar{B}\bar{C}$
    3. $f = \overline{\overline{A\bar{C}} \cdot \overline{\bar{B}\bar{D}} \cdot \overline{\bar{B}\bar{C}}}$
    4. $f = \overline{\overline{(\bar{A} + C)} + \overline{(B + D)} + \overline{(B + C)}}$

4. 1. $f = A\bar{B} + \bar{A}B + \bar{B}\bar{C}$
    3. $f = \overline{\overline{A\bar{B}} \cdot \overline{\bar{A}B} \cdot \overline{\bar{B}\bar{C}}}$
    4. $f = \overline{\overline{(\bar{A} + B)} + \overline{(A + \bar{B})} + \overline{(B + C)}}$

5. 1. $f = B + D$
    3. $f = \overline{\bar{B} \cdot \bar{D}}$
    4. $f = \overline{\overline{B + D}}$

6. 1. $f = A\bar{B}C + (\bar{B} + \bar{C}) \cdot (\bar{B} + \bar{D}) + \overline{A + B + C}$
    2. $f = \bar{B} + \bar{C}\bar{D}$
    3. $f = \overline{B \cdot \overline{\bar{C}\bar{D}}}$
    4. $f = \overline{\overline{B + \overline{C + D}}}$

7. 1. $f = \overline{\overline{\bar{A}B} \cdot \overline{\bar{C}D}} \oplus \overline{\bar{A}B} = \bar{A}B + AC + A\bar{D} + \bar{B}C + \bar{B}\bar{D}$
    2. $f = \bar{A}B + C + \bar{D}$
    3. $f = \overline{\overline{\bar{A}B} \cdot \bar{C} \cdot D}$
    4. $f = \overline{\overline{A + \bar{B} + C + \bar{D}}}$