1. Digital Electronics

The circuit translates to: $\overline{AB + (B \oplus C)} = 1$.

$\Rightarrow AB + (B \oplus C) = 0.$

$\Rightarrow AB = 0$ AND $B \oplus C = 0$

If $B = 0 \Rightarrow A = *, C = 0$

If $B = 1 \Rightarrow A = 0, C = 1$

1. (1,0,0)
   (0,0,0)
   (0,1,1)

2. Digital Electronics

With the minimum number of parentheses required the circuit translates as follows: $\overline{\overline{A}B(\overline{B + C} \oplus C)}$

2. As shown

3. Boolean Algebra

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

$\overline{A}B(\overline{C} + A + \overline{B}\,\overline{C}) = \overline{A}B\overline{C} + \overline{A}BA + \overline{A}B\overline{B}\,\overline{C} = \overline{A}B\overline{C}$

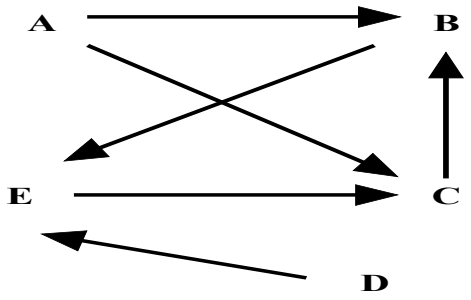
3. $\overline{A}B\overline{C}$

4. Graph Theory

The cycles are: ABD, ABDC, AC, ACBD, B, BDC, D

4. 7

5. Graph Theory



5. As shown