

Prob B.IV.1.

A)

1. $V_{GG5} = -1.23 \text{ V}$
2. $A_{dm} = -244.4, A_{cm} = -0.5$
3. $v_{o1} = -122.2 \cdot (v_{s1} - v_{s2}) - 0.25 \cdot (v_{s1} + v_{s2}), v_{o2} = 122.2 \cdot (v_{s1} - v_{s2}) - 0.25 \cdot (v_{s1} + v_{s2}).$

B)

1. $V_{GG5} = -1.23 \text{ V}$
2. $A_{dm} = 244.4, A_{cm} = -0.68 \cdot 10^{-3}$
3. $v_{out} = 244.4 \cdot (v_{s1} - v_{s2}) - 0.34 \cdot 10^{-3} \cdot (v_{s1} + v_{s2}).$

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Prob B.IV.2.

1. $f = 3 \text{ MHz}$
2. $f = 2.9 \text{ MHz}$
3. $f = 3.8 \text{ MHz}$

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Prob B.IV.3.

1. $I_{DP3} = I_{D1} = 50 \mu\text{A}, I_{DP4} = I_{D2} = 50 \mu\text{A}, I_{D5} = 100 \mu\text{A}, V_{GS5} = 1.27 \text{ V}, V_{GG5} = -1.23 \text{ V},$
 $V_{GS1} = V_{GS2} = 1.07 \text{ V}, V_{SG3} = V_{SG4} = 1.3 \text{ V}.$
2. $A_{dm} = -1.48, A_{cm} = -2 \cdot 10^{-3}$
3. $v_{o1} = -0.74 \cdot (v_{s1} - v_{s2}) - 10^{-3} \cdot (v_{s1} + v_{s2}), v_{o2} = 0.74 \cdot (v_{s1} - v_{s2}) - 10^{-3} \cdot (v_{s1} + v_{s2}).$

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