

**Prob B.II.1.**

A)

1.  $V_{GS1} = 0.98 \text{ V}$ ,  $I_{D2} = 8 \text{ } \mu\text{A}$ ,  $V_{DS2} = 2.6 \text{ V}$ ,  $I_O = 8 \text{ } \mu\text{A}$ .
2.  $I_{D2} = 8.2 \text{ } \mu\text{A}$ ,  $V_{DS2} = 2.54 \text{ V}$ ,  $I_O = 8.2 \text{ } \mu\text{A}$ .

B)

1.  $V_{SG1} = 1.14 \text{ V}$ ,  $I_{D2} = 10 \text{ } \mu\text{A}$ ,  $V_{SD2} = 2 \text{ V}$ ,  $I_O = 10 \text{ } \mu\text{A}$ .
2.  $I_{D2} = 10.37 \text{ } \mu\text{A}$ ,  $V_{SD2} = 1.88 \text{ V}$ ,  $I_O = 10.5 \text{ } \mu\text{A}$ .

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**Prob B.II.2.**

1.  $V_{GS1} = 1.16 \text{ V}$ ,  $I_{D1} = 10.97 \text{ } \mu\text{A}$ ,  $I_{DP3} = I_{D2} = 10.97 \text{ } \mu\text{A}$ ,  $V_{SG3} = 1.24 \text{ V}$ .
2.  $I_{O1} = 21.94 \text{ } \mu\text{A}$ ,  $R_{O1} = 11.4 \text{ M}\Omega$ ,  $I_{O2} = 10.97 \text{ } \mu\text{A}$ ,  $R_{O2} = 13 \text{ M}\Omega$ ,  $I_{O3} = 32.21 \text{ } \mu\text{A}$ ,  
 $R_{O3} = 7.6 \text{ M}\Omega$ ,  $I_{O4} = 19.5 \text{ } \mu\text{A}$ ,  $R_{O4} = 7.3 \text{ M}\Omega$ .
3.  $V_{O3(\text{min})} = V_{O1(\text{min})} = -2.14 \text{ V}$ ,  $V_{O2(\text{max})} = V_{O4(\text{max})} = 2.16 \text{ V}$ .

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**Prob B.II.3.**

A)

1.  $I_O = I_{D1} = 65 \text{ } \mu\text{A}$ ,  $V_{GS3} = V_{GS1} = 1.18 \text{ V}$ ,  $V_{SG5} = 2.64 \text{ V}$ .
2.  $R_O = 5040 \text{ M}\Omega$ .
3.  $V_O(\text{min}) = 1.56 \text{ V}$ .

B)

1.  $I_{D1} = 39.75 \text{ } \mu\text{A}$ ,  $V_{GS3} = 1.64 \text{ V}$ ,  $V_{GS1} = 1.1 \text{ V}$ ,  $V_{SG7} = 2.26 \text{ V}$ ,  $I_O = I_{D2} = I_{D5} = 39.75 \text{ } \mu\text{A}$ ,  
 $V_{GS2} = V_{GS4} = V_{GS6} = V_{GS5} = 1.1 \text{ V}$ ,
2.  $R_O = 10.57 \text{ G}\Omega$ .
3.  $V_O(\text{min}) = 0.84 \text{ V}$ .