For a BJT amplifier to be in forward active region:

$$V_E < V_B < V_C$$

Q1

$V_{B1} = 5.01 - 56.835M \times 333.78 = 4.991V$

$V_{C1} = 15 - 8.525m \times 1k = 6.475\ V$

$V_{E1} = (1+150) \times 56.835M \times 500 = 4.291\ V$

$V_{E1} < V_{B1} < V_{C1}$

$4.291 < 4.991 < 6.475$

Q2

$V_{E2} = (1+150) \times 13.634M \times 3.8k = 7.823\ V$

$V_{B2} = 8.57 - 13.634M \times 3.429k = 8.523\ V$

$V_{C2} = 15 - 2.045m \times 2k = 10.910\ V$

$V_{E2} < V_{B2} < V_{C2}$

$7.823 < 8.523 < 10.910$

M3

For a FET amplifier to be in saturation region:

$V_{DS} \geq V_{DS(sat)}$ $V_{DS(sat)} = V_{GS} - V_{TN}$ and $V_{GS} > V_{TH}$

$V_{DS} = 0.192$ $V_{DS(sat)} = -1.808 - -2 = 0.192$

$0.192 \geq 0.192$

$-1.808 > -2$ $V_{GS} = -1.808$ $V_{TH} = -2$