KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

EE-201 ELECTRIC CIRCUITS

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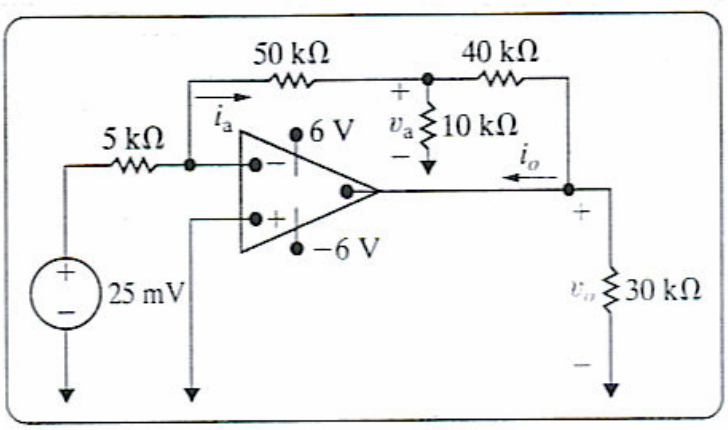
Sec: 8 Quiz # 4 Ser. # Name: I.D.#

For the circuit shown below calculates

a) v_o

b) i_o



$$i_a = \frac{25 \times 10^{-3}}{5000} = 5\,\mu\text{A}$$

$$v_a = -50 \times 10^3 i_a = -250\,\text{mV}$$

$$\frac{v_a}{50{,}000} + \frac{v_a}{10{,}000} + \frac{v_a - v_o}{40{,}000} = 0$$

$$\therefore \quad 4v_a + 20v_a + 5v_a - 5v_o = 0$$

$$\therefore \quad v_o = 29v_a/5 = -1.45\ \text{V}$$

$$i_o = \frac{-v_o}{30{,}000} + \frac{v_a - v_o}{40{,}000} = 78.33\,\mu\,\text{A}$$