Name:	**Dr JBO**
Student ID Number:	**Model answer**
Section:	01A / 01B
Lecturer:	Dr. Jamaludin Bin Omar

EEEB273 - Quiz 6 [Question Set 1]
SEMESTER 2, ACADEMIC YEAR 2010/2011
Date: 8 March 2011

Question:

Study Figure 1 carefully. Given that v_{I1} **= 0.9 V** and v_{I2} **= 0.6 V**.

(a) Using **superposition theorem**, find v_2.

[6 marks]

(b) Find v_O.

[4 marks]

Show clearly all calculations in order to get full marks.

Answer:

(a)

Find v_2 when $v_{I2} = 0$

$v_2\ (v_{I1})$ = (40k/(20k+40k))(v_{I1}) **[1]**

= (40k/(60k))(0.9) = 0.6 V **[1]**

Find v_2 when $v_{I1} = 0$

$v_2\ (v_{I2})$ = (20k/(20k+40k))(v_{I2}) **[1]**

= (20k/(60k))(0.6) = 0.2 V **[1]**

v_2 = $v_2\ (v_{I1}) + v_2\ (v_{I2})$ **[1]**

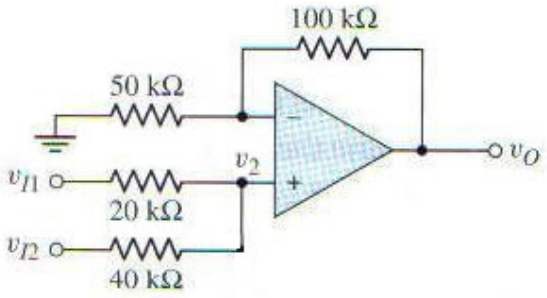
= 0.6 + 0.2 = 0.8 V **[1]**

(b)

Using virtual short circuit properties

v_O = (1+100k/50k)(v_2) **[2]**

= (3)(0.8) = 2.4 V **[2]**



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EEEB273 - Quiz 6 [Question Set 2]
SEMESTER 2, ACADEMIC YEAR 2010/2011
Date: 8 March 2011

Question:

Study Figure 1 carefully. Given that v_{I1} **= 0.75 V** and v_{I2} **= 0.45 V**.

(c) Using **superposition theorem**, find v_2.

[6 marks]

(d) Find v_O.

[4 marks]

Show clearly all calculations in order to get full marks.

Answer:

(a)

Find v_2 when $v_{I2} = 0$

$v_2\ (v_{I1})$ = (40k/(20k+40k))(v_{I1}) **[1]**

= (40k/(60k))(0.75) = 0.5 V **[1]**

Find v_2 when $v_{I1} = 0$

$v_2\ (v_{I2})$ = (20k/(20k+40k))(v_{I2}) **[1]**

= (20k/(60k))(0.45) = 0.15 V **[1]**

v_2 = $v_2\ (v_{I1}) + v_2\ (v_{I2})$ **[1]**

= 0.5 + 0.15 = 0.65 V **[1]**

(b)

Using virtual short circuit properties

v_O = (1+100k/50k)(v_2) **[2]**

= (3)(0.65) = 1.95 V **[2]**

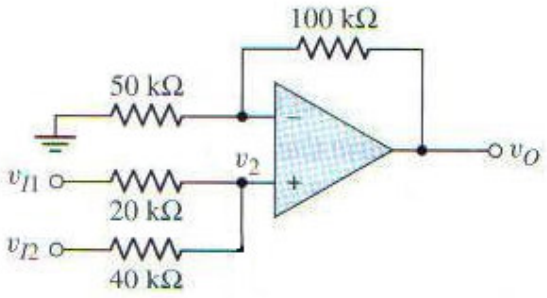

Figure 1