KELAS A.

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Jurusan/Prodi	JTIP / TEKNIK ELEKTRO			
Mata Kuliah	RANGKAIAN ELEKTRONIKA 2	Jenis Kegiatan		
Waktu Pelaksanaan	90 MENIT / 6 APRIL 2023	Tugas / Quiz / (UTS) / UAS		

1.) $V_{ref} = \frac{R_1}{R_1 + R_2} (\pm V_{sat} - (-3)) - 3$

$= \frac{10.000}{10.000 + 20.000} (\pm 9 + 3) - 3$

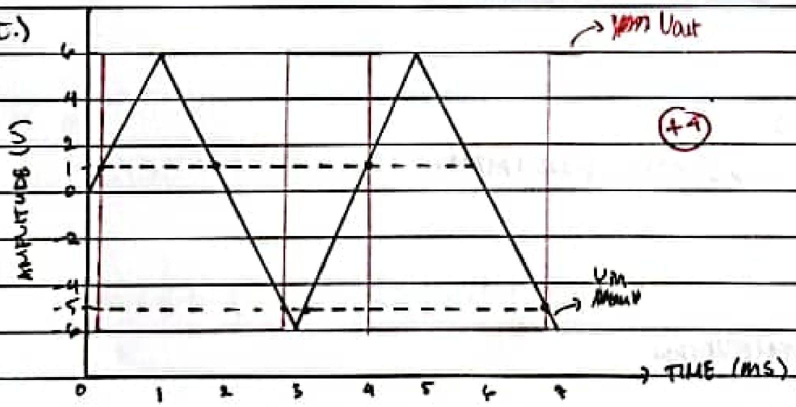
a.) $UTH = \frac{10.000}{10.000 + 20000} (9 + 3) - 3$

$= 1\ V$ (+8)

b.) $LTH = \frac{10.000}{10.000 + 20000} (-9 + 3) - 3$

$= -5\ V$ (+8)

c.)



(+7)

3.) Iout = $\frac{V_{in}}{R_1} = \frac{3}{3000} = 0{,}001$ A (+7)

→ Iout = I

$V_A = I \cdot R_1$	$V_A = I \cdot R_L$	$V_{RL} = R_L \cdot I$
$= 0{,}001 \cdot 3\,k\Omega$	$3 = 0{,}001 \cdot R_L$	$= 300 \cdot 0{,}001$
$= 3$ V. (+5)	$R_L = \frac{3}{0{,}01} = 300\,\Omega$	$= 0{,}3$ V.

4.b) Iout = $\frac{6}{10000} = 0{,}0006$ A. (+7)

Iout = Iin = I

b). $\frac{V_A - V_{out}}{R_f} = I_{in}$

$\frac{0 - 0}{15\,k\Omega} = 0{,}0006$

$V_A = 0$ V. (+5)

2.) a) PENGUATAN RANGKAIAN 1

$A_1 = -\frac{R_2}{R_1} = \frac{-10k\Omega}{1k\Omega} = 10$ KALI PENGUATAN (+5)

a) PENGUATAN RANGKAIAN 2

$A_2 = -\frac{R_4}{R_3} = \frac{-4000\,\Omega}{2000\,\Omega} = -2$ KALI PENGUATAN. ×

b) PENGUATAN TOTAL

$A_1 + A_2 = 10 + 2$ $A_{TOTAL} = A_1 \times A_2$ ×

$= 12$ KALI PENGUATAN.

a) RANGKAIAN 1 (MISAL Vsat = 5)

$UTP = \frac{R_1}{R_2} V_{sat}$

$= \frac{1k\Omega}{10k\Omega} \cdot 5 = 0{,}5$ V

$LTP = -\frac{R_1}{R_2} V_{sat}$

$= -\frac{1k\Omega}{10k\Omega} \cdot 5 = -0{,}5$ V.

d) RANGKAIAN 2 (misal Vsat = 5)

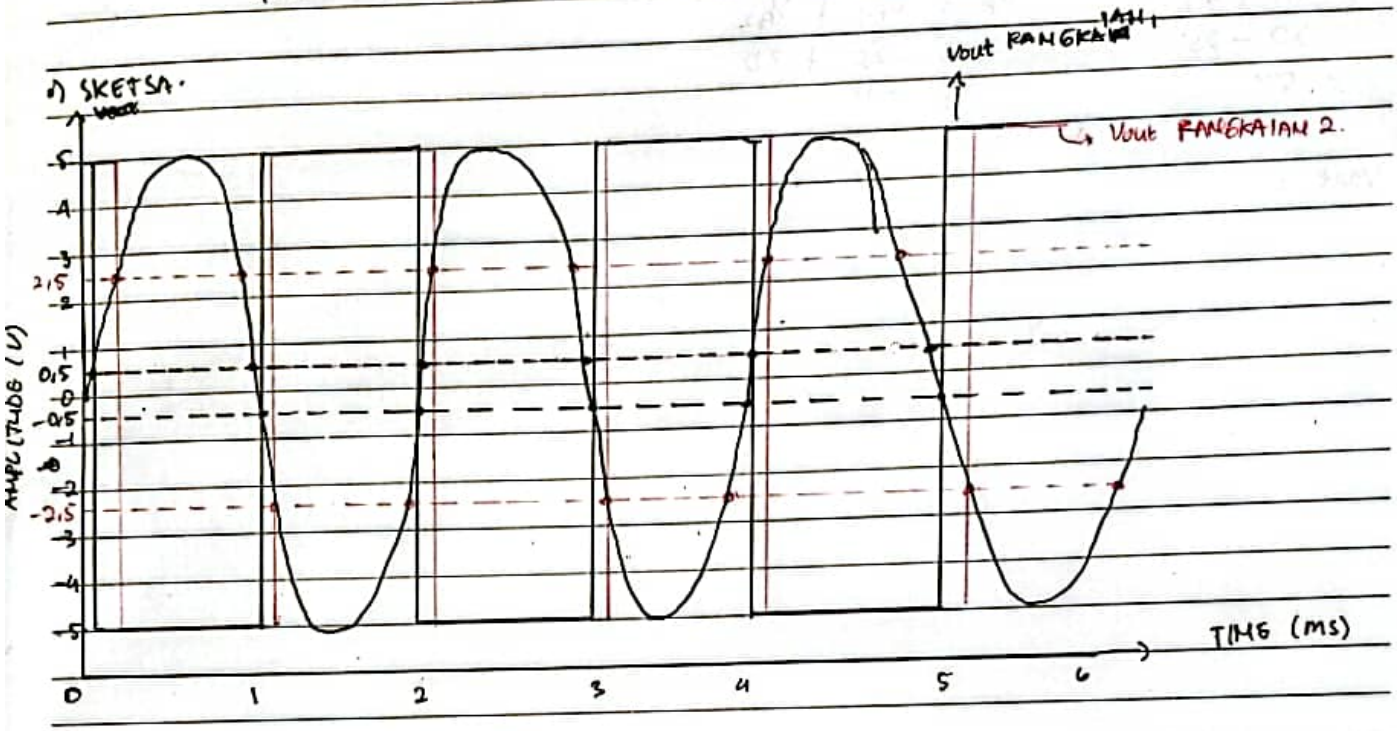
$UTP = \frac{R_3}{R_4} \cdot V_{sat}$

$= \frac{2k\Omega}{4k\Omega} \cdot 5 = 2,5\ V$

$LTP = -\frac{R_3}{R_4} \cdot 5 =$

$= \frac{-2k\Omega}{4k\Omega} \cdot 5 = -2,5\ V.$

d) SKETSA.



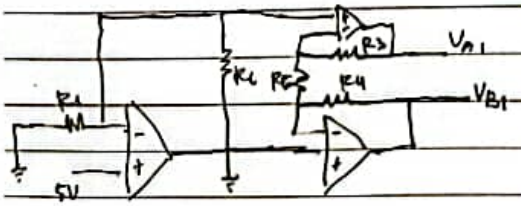
5.) $I = V/R$

$= \frac{5}{5000} = 0,001\ A$

$V_{RL} = R_L \cdot I$

$= 100 \cdot 0,001$

$= 0,1\ V.$

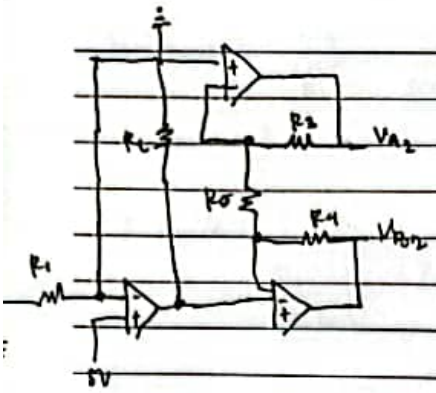


$V_{A1} = \left(\frac{R_3}{R_G} + 1\right) V_i$

$= \left(\frac{10}{2} + 1\right) 5$

$= 30\ V$

$V_{B1} = -\frac{R_4}{R_G} \cdot V_i = \frac{10k\Omega}{2k\Omega} \cdot 5 = -25\ V.$



$V_{B1} = \left(\frac{R_4}{R_5} + 1\right) \cdot V_1$

$= \left(\frac{10k\Omega}{2k\Omega} + 1\right) 5$

$= 30\ V$

$V_{A2} = -\frac{R_3}{R_6} \cdot U_1$

$= \frac{10k\Omega}{2k\Omega} \cdot 5$

$= -25\ V.$

$V_A = V_{A1} + V_{A2}$

$= 30 - 25$

$= 5V$

$V_B = V_{B1} + V_{B2}$

$= -25 + 30$

$= 5V.$

$V_{out} =$