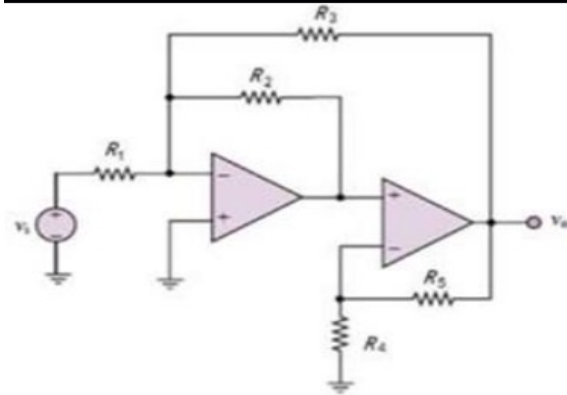




Given $R_1=10\Omega$, $R_2=10\Omega$, $R_3=10\Omega$, $R_4=10\Omega$ and $R_5=30\Omega$.

- ☐ $A_v = -2.25(V/V)$
☐ $A_v = 0.80(V/V)$
☒ $A_v = -0.80(V/V)$
☐ $A_v = 2.25(V/V)$

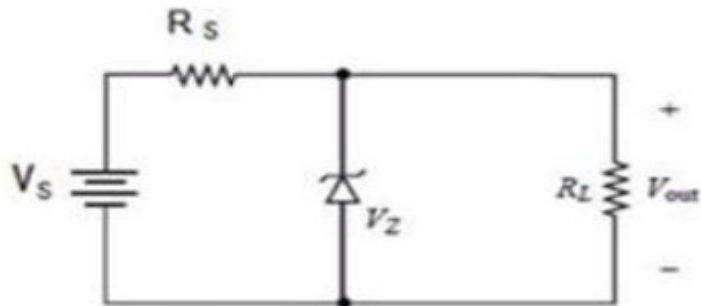
Input Values

R1	50
R2	10
R3	10
R4	10
R5	10
Vout	-0.2
Vin	1.5
Av	-0.13333

[REDACTED]

[REDACTED]

Find the minimum value of R_L for which the output voltage keeps exactly at V_Z



Given $V_S = 25\text{ V}$, $V_Z = 15\text{ V}$, and $R_S = 25\text{ K}\Omega$.

- ☐ 35.0 $\text{K}\Omega$.
- ☐ 20.5 $\text{K}\Omega$.
- ☒ 37.5 $\text{K}\Omega$.
- ☐ 25.0 $\text{K}\Omega$.

 Moving to the next question prevents changes to this answer.

Input

V_S	25
V_Z	15
R_S	10
R_L	15

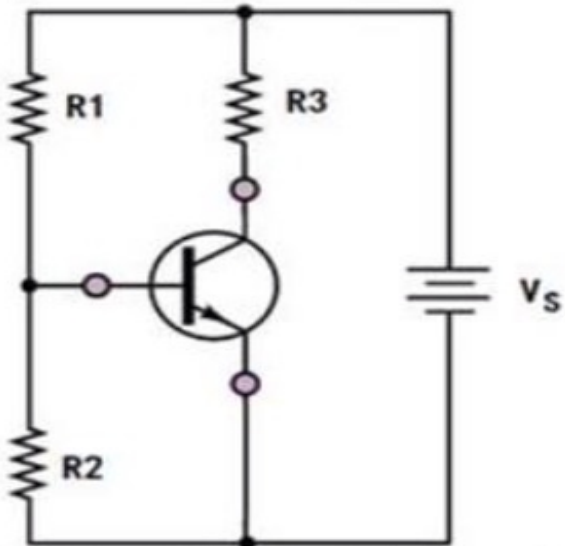


12.

Question 2 of 5 [>](#)



Given the circuit of the figure, determine the base current I_{BQ} and collector voltage V_C if $V_S = 5\text{ V}$.



Given $R_1 = 100\text{ k}\Omega$, $R_2 = 200\text{ k}\Omega$, and $R_3 = 500\Omega$.

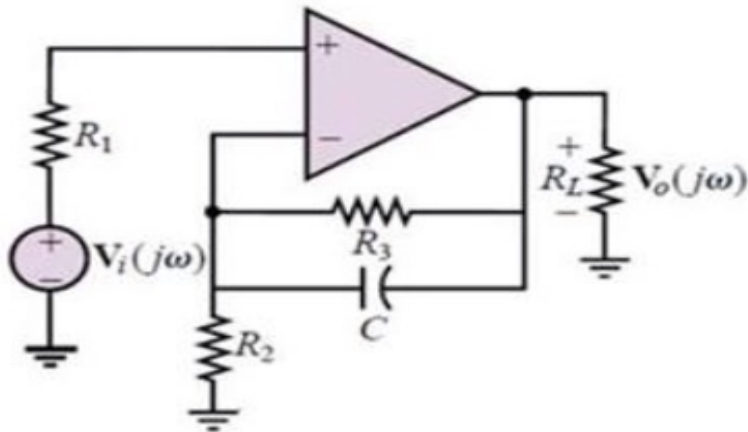
- ☐ $I_{BQ} = 0.032\text{ mA}$, $V_{CEQ} = 3.350\text{ V}$.
☒ $I_{BQ} = 0.041\text{ mA}$, $V_{CEQ} = 3.975\text{ V}$.
☐ $I_{BQ} = 0.041\text{ mA}$, $V_{CEQ} = 3.350\text{ V}$.

Input

V_S	5
R_1	100
R_2	100
R_3	500
V_{γ}	0.6
β	50
I_{BQ}	0.038 mA
I_{BQ} (SI unit)	0.000038
I_C	0.0019
V_C	4.05

voltage V_{CEQ} . Assume a 0.6 V offset voltage, $\beta = 50$, and $V_S =$

The circuit shown in the figure is an active filter with. Determine the cutoff frequency (ω_0) and A_v



Given $R_1=2k\Omega$, $R_2=5k\Omega$, $R_3=50k\Omega$, $C=100nF$.

- ☐ $\omega_0 = 2000 \text{ rad/sec}$; $A_v = 8.22 \text{ dB}$.
- ☒ $\omega_0 = 200 \text{ rad/sec}$; $A_v = 20.83 \text{ dB}$.
- ☐ $\omega_0 = 2000 \text{ rad/sec}$; $A_v = 20.83 \text{ dB}$.
- ☐ $\omega_0 = 200 \text{ rad/sec}$; $A_v = 8.22 \text{ dB}$.

Input

R1	2			
R2	5			
R3	10		SI unit (R3, kilo)	1.00E+04
C	25.00		SI Unit C, Nano	0.000000025
Wo	4000.00		rad/s	
Vout/vin	3			
Gain (DB)	9.542425			

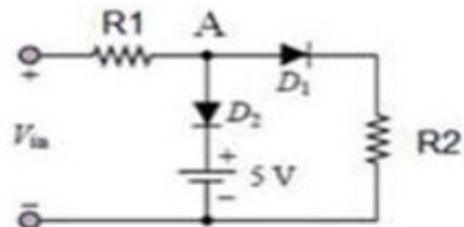


pass-band gain (A_V) of the filter.



Question 1

Two ideal diodes are connected in a circuit shown in the figure. Calculate the



Given $R1 = 9 \text{ k}\Omega$ and $R2 = 12 \text{ k}\Omega$.

- ☐ $0 < V_{in} < 7.75 \text{ V}$
- ☒ $0 < V_{in} < 8.75 \text{ V}$
- ☐ $0 < V_{in} < 7.25 \text{ V}$
- ☐ $0 < V_{in} < 8.25 \text{ V}$

 Moving to the next question prevents changes to this answer.

Input

R1	9
R2	12
Vd	5
Vin(v)	8.75

20 points

✓ Saved

e voltage range of V_{in} so that D_1 is "ON" but D_2 is "OFF".

Question 1 of 5 >