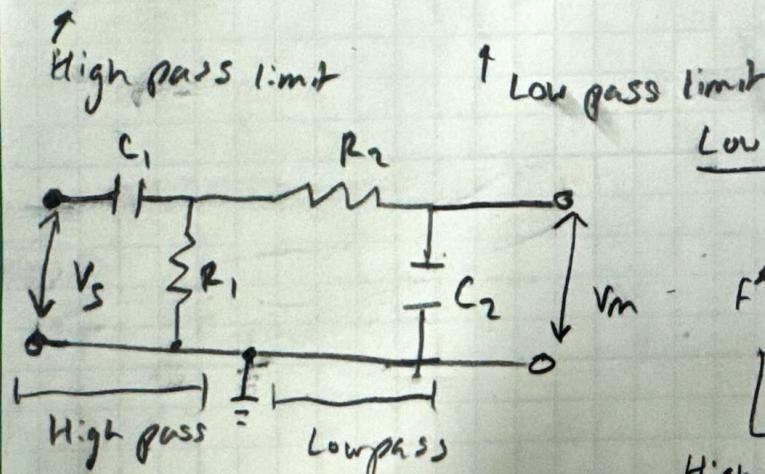


### Question 18

Band pass filter

$$500 \text{ Hz} < f < 50 \text{ kHz}$$



Low pass

$$f_{low}^* = 50 \text{ kHz}$$

$$f^* = \frac{1}{2\pi RC} \rightarrow RC = \frac{1}{2\pi f^*} = 3.183 \cdot 10^{-6}$$

$$R_2 = 1 \Omega \quad C_2 = 3.183 \text{ nF}$$

High pass

$$f_{high}^* = 500 \text{ Hz}$$

$$f_{high}^* = \frac{1}{2\pi RC} \rightarrow RC = 3.183 \cdot 10^{-3}$$

$$R = 100 \Omega \quad C_1 = 3.183 \mu\text{F}$$

$$G_{dB} = -3 \text{ dB}$$