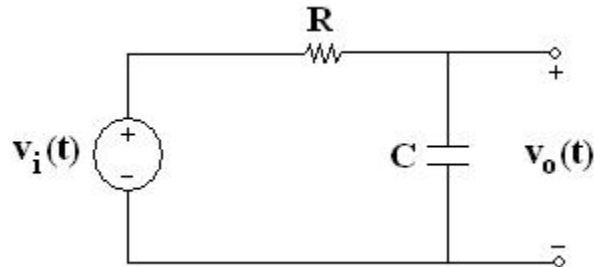


# JEE2330 – Spring 2025

## Lab #3 Problem

In the laboratory, you are to construct a RC circuit similar to the one shown below.



1. What type of filter is the above circuit?
  - a. Band Pass Filter
  - b. High Pass Filter
  - c. Low Pass Filter
  - d. Band Stop Filter
2. What is the half-power frequency ( $f_1$ ) in Hz if the resistance  $R$  in the above circuit is measured to be  $8 \text{ k}\Omega$  and the capacitor  $C$  is measured to be  $0.015 \mu\text{F}$ ?

$$f_1 = \underline{\hspace{2cm}}$$

3. What is the voltage ratio and phase shift for a sinusoidal input voltage  $v_i(t)$  that has frequency of  $2500 \text{ Hz}$ ?

$$\begin{aligned} |A| &= \underline{\hspace{2cm}} \\ \Theta &= \underline{\hspace{2cm}} \end{aligned}$$

4. What is the output voltage waveform  $v_o(t)$  if the input is  $v_i(t) = 12 \cos(2\pi ft)$  volts, where  $f = 2500 \text{ Hz}$ ?

$$v_o(t) = \underline{\hspace{4cm}}$$