INC 212 Signals and System **Homework 2**
Assign: 26 April 2020 **Due Fri 1 May 2020**

Instruction: This is an in class assignment.
Member:

1. Name:_____Code:_____

Questions: Low-Pass Filter

1. Consider a signal

$$x(t) = 5\cos(10\pi t) + \sin(90\pi t)$$

shown in Figure 1. If we consider a part of the signal $x(t)$ that has a frequency greater

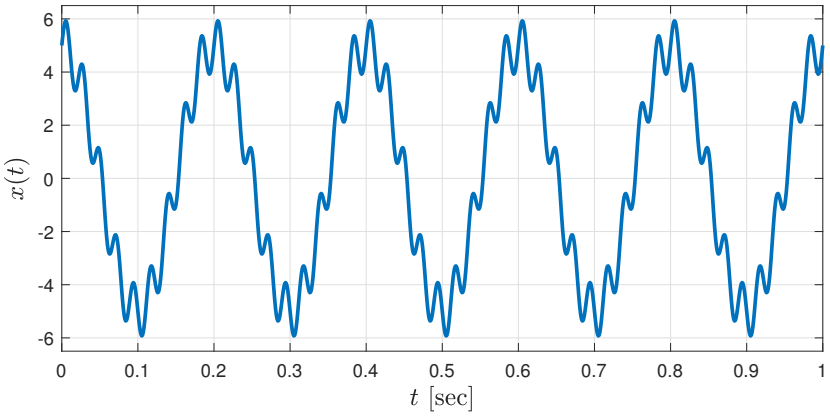

Figure 1: A sinusoidal signal

than 10π rad/sec is a noise. Using a RC circuit in Fig 2, design values of R and C to extract the signal $y(t) = 5\cos(10\pi t)$. Show your analysis in terms of the filter design studied in class, and plot of $x(t)$ and $y(t)$ on the same axis. The best design will get 10 points. If we have n duplicated design, the score will divide with n.

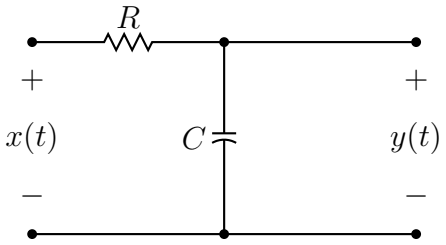

Figure 2: RC circuit