

ELENDU JUSTICE CHIRINGO

17/ENG02/021

300L

COMPUTER ENGINEERING

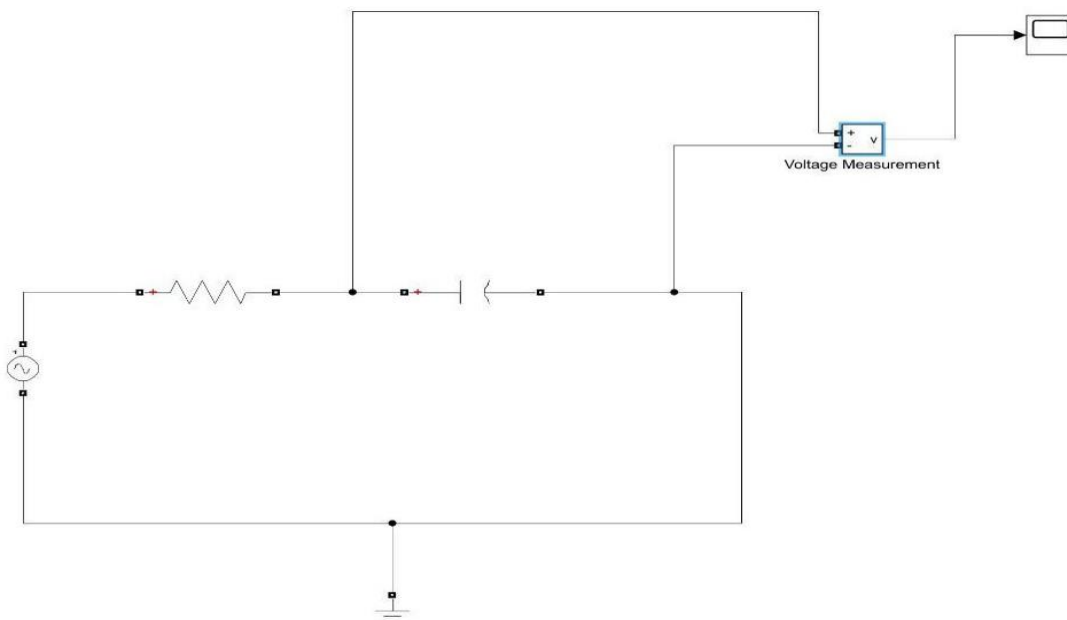
ENG 342

A.

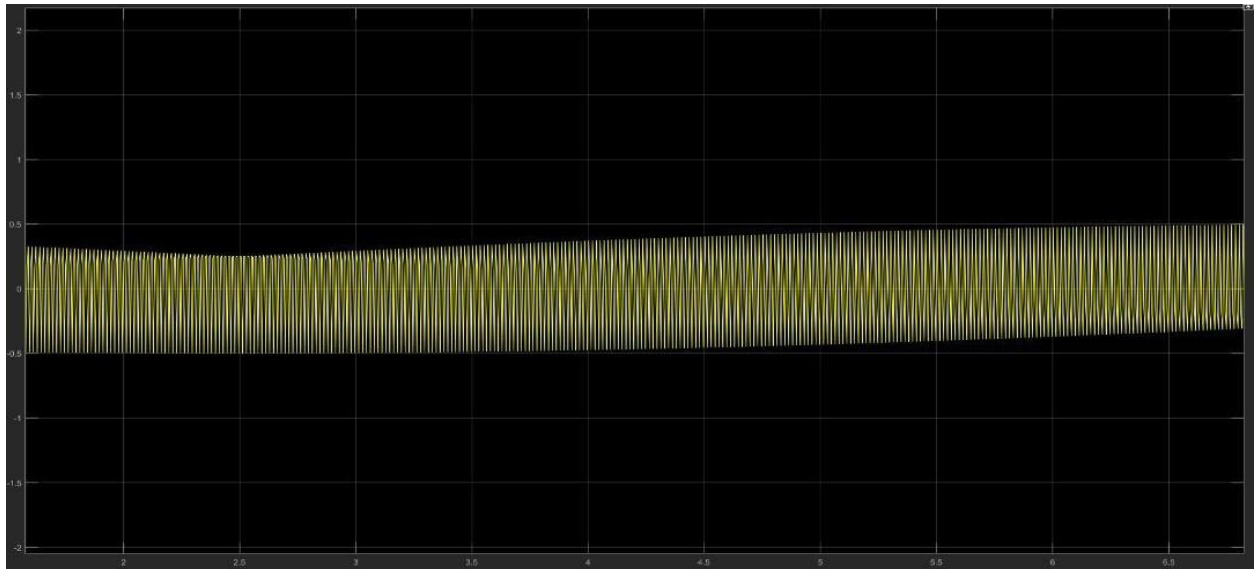
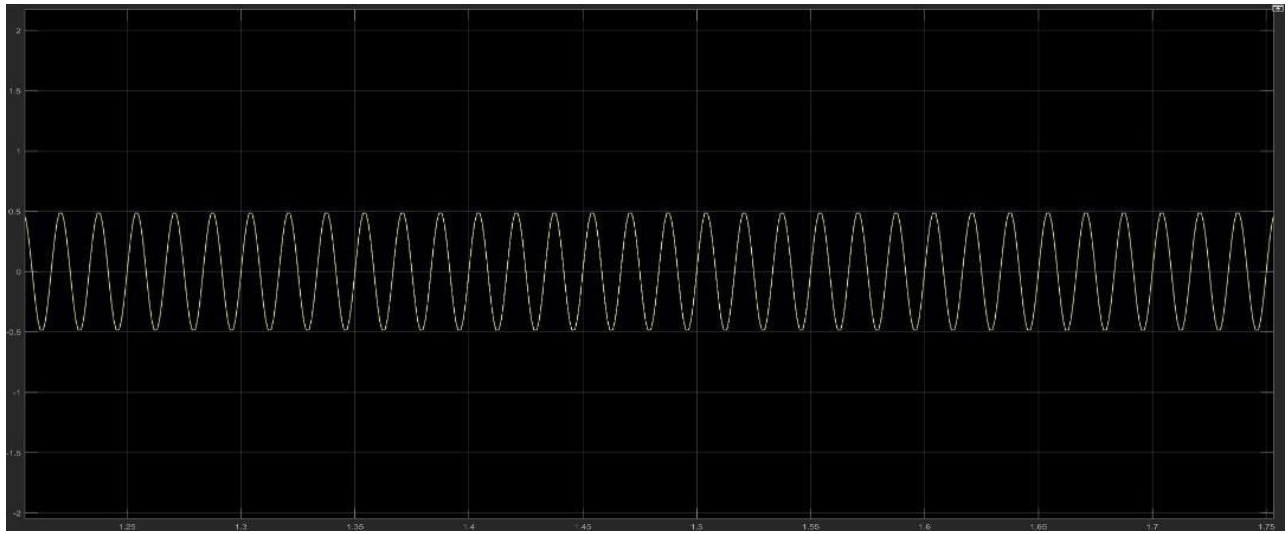
Active filters are capable of dealing with very low frequencies (approaching 0 Hz), and they can provide voltage gain (passive filters cannot). Active filters can be used to design high-order filters without the use of inductors; this is important because inductors are problematic in the context of integrated-circuit manufacturing techniques. However, active filters are less suitable for very-high-frequency applications because of amplifier bandwidth limitations. Radio-frequency circuits must often utilize passive filters.

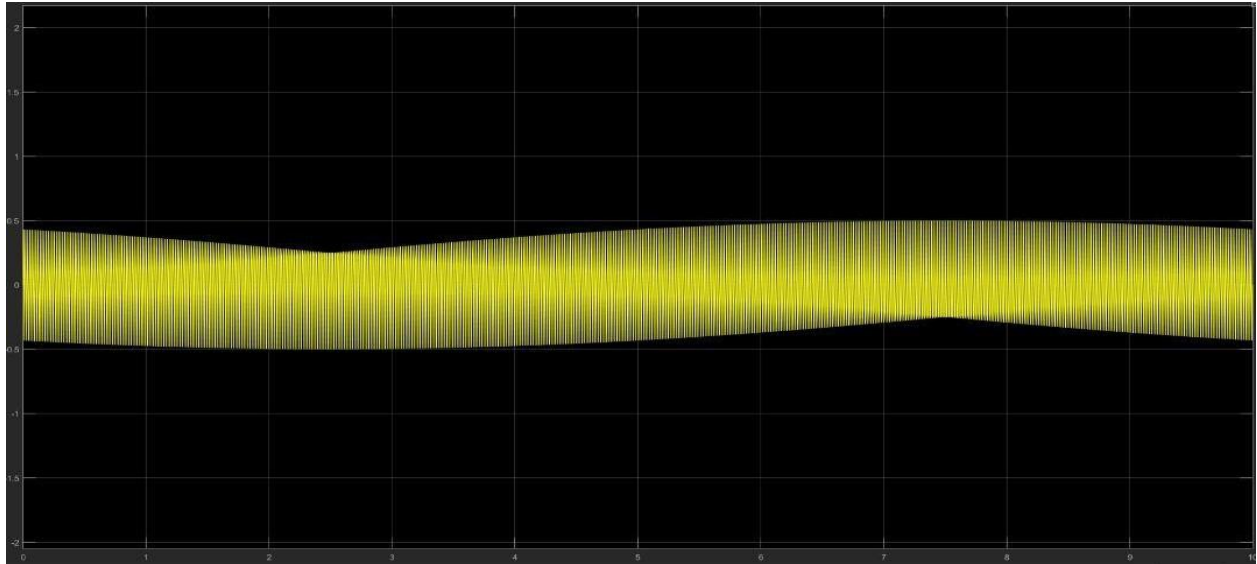
The benefit of the low-pass filter is attenuation of high frequency noise. The filtered signal (solid line) is smoothed compared to the original signal (dotted line). The cost of low-pass filtering can be seen in the reduction of the high frequency component of the signal.

B.



D.





E.

When the two filters were passed through the signals there was a change in the graph. As the order of the filter increases, so does its size. Also the accuracy declines, in that the difference between the actual stop band response and the theoretical stop band response increases with an increase in the order of the filter.