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17/Eng02/022
Computer Engineering

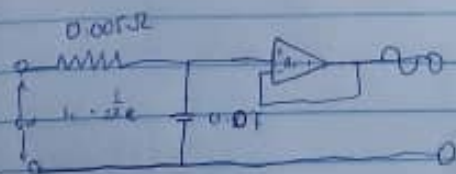
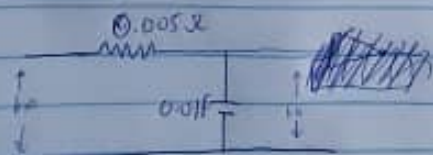
ENG022 Assignment 2

A Discuss the benefits of filters in engineering systems.

First of all what's a filter?

- A filter are essential building blocks of any Electronic and communication systems that alter the amplitude and/or phase characteristics of a signal with respect to frequency.
- ~~The~~ benefits of filters that is basically linear circuit that help to remove unwanted components such as noise, interference and distortion from input signals.
- Filters circuits are used to eliminate background noise.
- They are used in Radio Tuning to a specific frequency.
- They are used in Pre-amplification, Equalization - Tone Control in audio system.
- In Electronic filters, active technology makes design easier and open up new possibilities in filter specifications.
- Digital filters operates on signal represented in digital form. It directly implements a mathematical algorithm, corresponding to the desired filter transfer function, in the programming of microcode.

B Design a low pass filter of 0.005 Hz and 0.1 Vt using building blocks only. You can have to find the amplitude.



c. Determine the cut off frequency

$$f_c = \frac{1}{2\pi RC}$$

$$= \frac{1}{2 \times 3.142 \times 0.005 \times 0.01}$$

$$= 3182.69 \text{ Hz}$$