COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Elctronics and Communications

Lecturer : Dr.Saleh Eissa

Course : Analog Signal Processing

Course Code: EC434

Problem Set 2

P1. For the Low Pass Filter (LPF) shown in figure 1, derive the transfer function and sketch its magnitude transfer function.

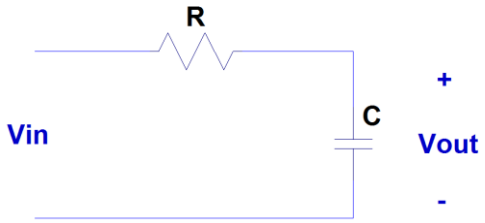

Fig.1

P2. For the High Pass Filter (HPF) shown in figure 2, derive the transfer function and sketch its magnitude transfer function.

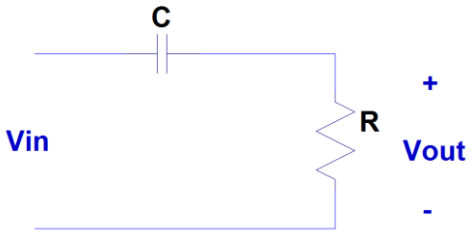

Fig.2

P3. For the LPF shown in figure 3, show that at $w=w_n$ the magnitude response is 3dB below the value at DC for $Q=1/\sqrt{2}$.

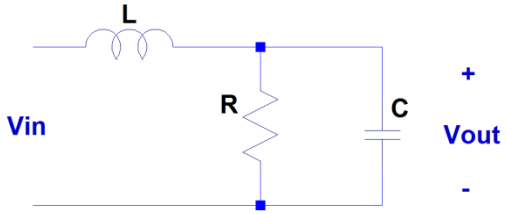

Fig.3

P4. For a maximally flat passive 2nd order LPF shown in figure 3, design for a cut-off frequency of 10k. Set R=10k.

P5. Design a 2nd order Low Pass Filter as shown in figure 3, for $P_{1,2}=-150x10^3+ j593.7x10^3$.

P6. Modify figure 1 to get a High Pass Filter. Derive the transfer function. Sketch its amplitude response for R=10KΩ, L=3.6mH and C=500pF.

P7. Give the transfer function for the 2nd order Band Pass Filter shown in figure 4 it the center frequency is 10^5 r/s and the 3dB-bandwidth is10^3 r/s.

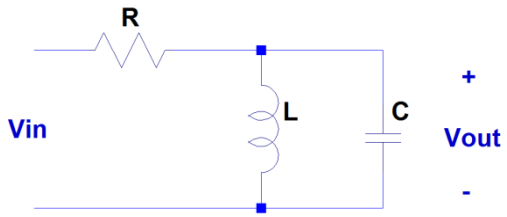

Fig.2