EE 341 – Homework Chapter 7

7.7 Design a Butterworth lowpass filter for the following specifications:

Pass band ($0 \le |\omega| \le 10$ radians/s) $0.9 \le |H(\omega)| \le 1$;

Stop band ($|\omega| > 20$ radians/s) $|H(\omega)| \le 0.10$,

By enforcing the pass-band requirements. Repeat for the stop-band requirements. Sketch the magnitude spectrum and confirm that the magnitude spectrum satisfies the design specifications.

7.9 Repeat (a) Problem 7.7 for the Type I Chebyshev filter

7.14 Design a Butterworth highpass filter for the following specifications:

Stop band ($|0 \le |\omega| \le 15$ radians/s) $|H(\omega)| \le 0.15$;

Pass band ($|\omega| > 30$ radians/s) $0.85 \le |H(\omega)| \le 1$;

7.16 Repeat problem 7.14 for the type II Chebyshev filter