

HW #4 (100%) Due: 05/08

[MATLAB EXERCISE]

1. (25%) Consider the system function $H(z)$ of a FIR system in textbook Problem 5.38 (p.p. 325). Let $H(z)=H_{\min}(z)H_{\text{ap}}(z)$.
 - (1) (5%) The zero-pole plots of $H(z)$, $H_{\min}(z)$ and $H_{\text{ap}}(z)$.
 - (2) (10%) Plot the magnitude response (in dB), phase response and group delay of the minimum phase system ($0 \leq \omega \leq 2\pi$).
 - (3) (5%) Verify that $H(z)$ and $H_{\min}(z)$ have the same magnitude response.
 - (4) (5%) Plot the impulse responses of $H(z)$ and $H_{\min}(z)$ and verify the minimum energy delay property.

[TEXTBOOK PROBLEMS]

2. (12%) 5.35
3. (8%) 5.37
4. (10%) 5.45
5. (15%) 5.53
6. (15%) 5.58
7. (15%) 5.64