ICE503 DSP-Homework#13

1. Figure 1 shows the pole-zero plots for eight different causal LTI systems with real impulse responses. Indicate which of the following properties apply to each of the systems pictured: stable, IIR, FIR, all-pass, generalized linear phase (which type).
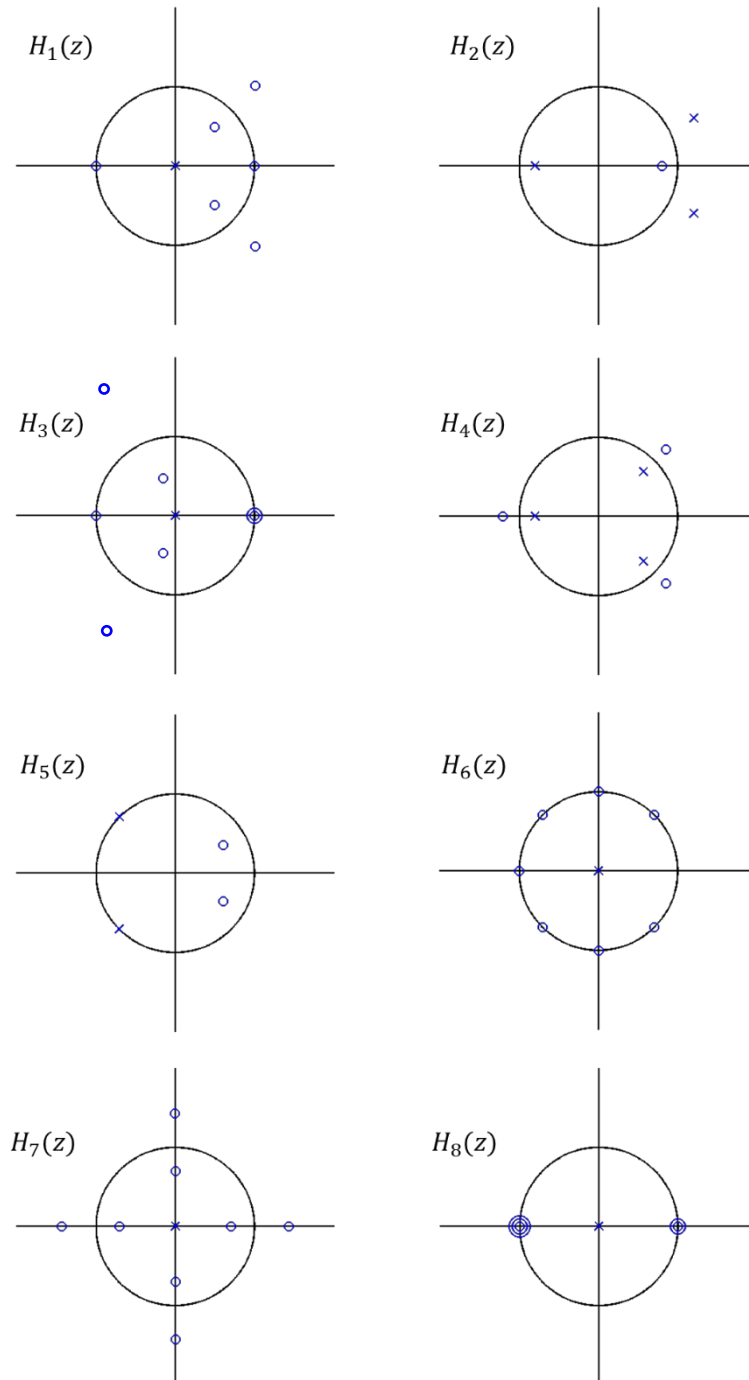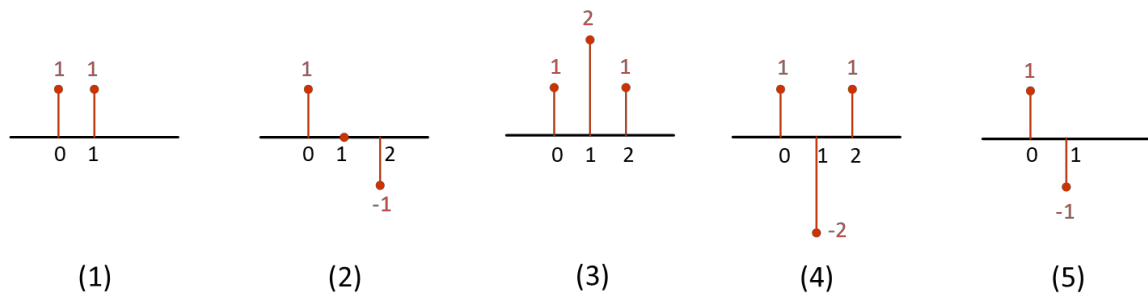
Figure 1: The pole-zero plots for eight different causal LTI systems

2. Given the following impulse responses

| (1) | (2) | (3) | (4) | (5) |

(a) Determine their phase delay.

(b) Determine the types of the FIR filters.

(c) Sketch the zeros of the corresponding system.

3. MATLAB simulation:

Using the impulse response for two different causal LTI systems in Figure 2 and sketch the magnitude of the filter in dB, group delay, pole-zero diagram and discuss the result.
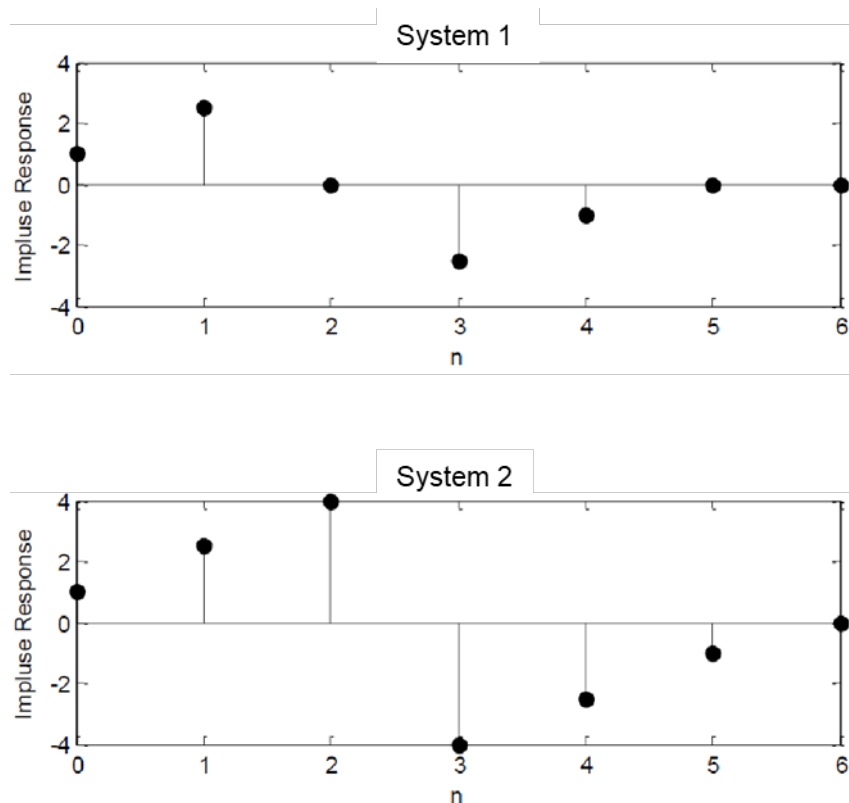

Figure 2: The impulse response for two different causal LTI systems