

DIGITAL SIGNAL PROCESSING

CHAPTER 5: FIR Filter Design

QUIZ 6 (10 Marks)

Name: _____

Date: _____

Question

Design the FIR Low-pass filter to meet the following specifications.

Passband ripple ≤ 0.9 dB

Passband Frequency = 8 kHz

Stopband Attenuation ≥ 60 dB

Stopband Frequency = 12 kHz

Sampling Frequency = 40 kHz

Determine the following:

- (i) Sketch the filter according to the specification above.
- (ii) Determine the filter order, N by using Window and Optimal method.
- (iii) Calculate the desired impulse response, $h_d(n)$.

