

I Pre-Lab Questions.

1. Find the Values of  $h(n)$  for  $N=11$ .

Soln. Filter Coefficients,  $h(n)$ :

- 0.0729034
- 0.0504507
- 0.2042709
- 0.2727273
- 0.2042709
- 0.0504507
- 0.0729034
- 0.0729034
- 0.0504507
- 0.2042709
- 0.2727273

II Post-Lab Questions.

1. What is the general formula to find values of  $H(\omega)$ ,  $D(\omega)$  and  $h(n)$  using frequency sampling method

Soln.

$$h(n) = \frac{1}{2\pi} \int_{-\pi}^{\pi} H(\omega) e^{j\omega n} d\omega$$

$$H(\omega) = \begin{cases} 1 & |\omega| \leq \omega_c \\ 0 & \text{elsewhere} \end{cases}$$

2. List the steps in defining the "k" value of frequency sampling method?

Soln. a) Choose the desired frequency response  $H(\omega)$ .



b) Sample  $H(\omega)$  at  $N$  points taken by  $\omega = \omega_k = \frac{2\pi k}{N}$  where  
 $k = 0, 1, 2, \dots, (N-1)$  to generate sequence  $H(k)$ .

c) The  $N$ -point inverse DFT of the sequence  $H(k)$  gives the impulse response of the filter  $h(n)$ .