COURSE NAME: Digital Signal Processing
COURSE CODE: PCEC-111
Assignment 3

Date of Submission: 22.11.2024

Q1.

a. Discuss in detail 'Rectangular window' in FIR filter design.
b. Design a band-pass filter of order 5 to pass frequencies in range 1 to 2 rad/sec, using Hanning window.

Q2.

a. Determine H(z) using Impulse Invariance method for the system function

$$H(s) = \frac{1}{(s + 0.5)(s^2 + 0.5s + 2)}$$

b. The system transfer function of Analog filter is given by

$$H(s) = \frac{s + 0.1}{(s + 0.1)^2 + 16}$$

Obtain the system transfer function of digital filter using BLT which is resonant at $w_r = \frac{\pi}{2}$.