
ECE250: Signals and Systems

Quiz 9 (22/11/2022)

Max. Marks: 10

Note: Please Provide proper mathematical justifications with your answers. No marks will be awarded without a valid justification.

1. (CO4) (10 marks) A causal and stable LTI system S has the property that

$$x[n] \rightarrow y[n]$$

$$\left(\frac{4}{5}\right)^n u[n] \rightarrow n\left(\frac{4}{5}\right)^n u[n]$$

- (a) (6 Marks) Determine the frequency response $H(e^{j\omega})$ for the system S using DTFT properties.
- (b) (4 Marks) Determine a difference equation relating any input $x[n]$ and the corresponding output $y[n]$.