Note: Homework, tests and solutions from previous offerings of this course are off limits, under the honor code.

Relate the CTFT of $x_c(t)$ to the DTFT of $x[n]$:

Let $x_c(t)$ be a CT signal and sample it at a rate of $T$ samples/second. Recall that the CT sampled signal $x_s(t) = \sum_n x_c(nT)\delta(t - nT) = \sum_n x[n]\delta(t - nT)$. How is the DTFT of $x[n]$

$$X(\omega) = \sum_n x[n]e^{-j\omega n}$$

related to the CTFT of $x_c(t)$?

HINT: Consider the expression for the CTFT of $x_s(t)$ and relate $X(\omega)$ to $X_s(\Omega)$ using the identification $\omega \equiv \Omega T$. 