



ISRA UNIVERSITY

Islamabad Campus

Department of Electrical Engineering

Program: B.E. (Electrical)

Semester – Spring 2016

EL-322 Digital Signal Processing

Assignment – 2

Marks: 10

Due Date: 13/04/2016

Handout Date: 06/04/2016

Question # 1:

Find the z-transform of the following sequences:

1. $x[n] = \cos(n\omega_0)u(n)$
2. $x[n] = \left(\frac{1}{2}\right)^n u(n+2) + (3)^n u(-n-1)$

Question # 2:

The z-transform of a sequence $x(n)$ is:

$$X(z) = \frac{z + 2z^{-2} + z^{-3}}{1 - 3z^{-4} + z^{-5}}$$

If the ROC includes the unit circle, find the DTFT of $x(n)$ at $\omega = \pi$.

Good Luck