



# ISRA UNIVERSITY

Islamabad Campus

Department of Electrical Engineering

Program: B.E. (Electrical)

Semester - Fall 2018

EE313- Signal & Systems

Quiz – 3

Marks: 30

Handout Date: 11/01/2019

**Question # 1:**

Consider an LTI system for which the input  $x[n]$  and the output  $y[n]$  satisfy the linear constant coefficient difference equation:

$$y[n] - \frac{1}{2}y[n-1] = x[n] + \frac{1}{3}x[n-1]$$

**Question # 2:**

Determine the Fourier series coefficients of the following signal:

$$x[n] = \cos \frac{\pi}{4} n$$

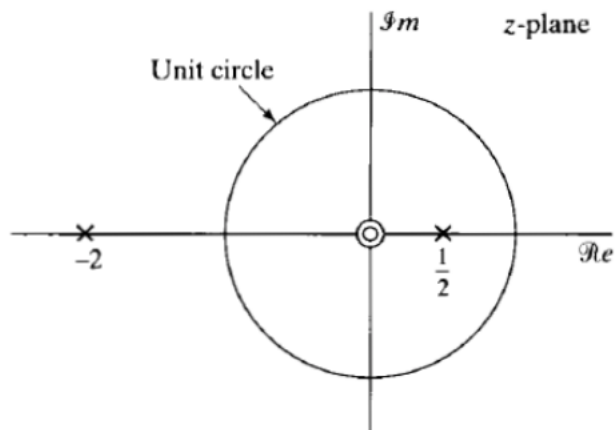
**Question # 3:**

a) Consider a system with system function:

$$H(z) = \frac{1}{1 - \frac{1}{2}z^{-1}} + \frac{1}{1 - 2z^{-1}}, |z| > 2$$

Find  $h[n]$  and also tell whether the system is Causal or not?

b) For the following pole-zero plot, determine that whether the system is both causal and stable or not. If not, then explain why?



**Good Luck**