



ISRA UNIVERSITY

Islamabad Campus

Department of Electrical Engineering

Program: B.E. (Electrical)

Semester - Fall 2016

EL313- Signal & Systems

Assignment – 2

Marks: 20

Due Date: 21/12/2016

Handout Date: 14/12/2016

Question # 1:

Consider a discrete-time LTI system with impulse response:

$$h[n] = \left(\frac{1}{2}\right)^n u[n]$$

Use the Fourier transforms to determine the response $y[n]$ to the given input:

$$x[n] = \left(\frac{3}{4}\right)^n u[n]$$

Question # 2:

Use the Fourier transform analysis equation to calculate the Fourier transform of:

$$x[n] = 2 \left(\frac{3}{4}\right)^n u[n]$$

Question # 3:

The following is the Fourier transform of discrete-time signal. Determine the signal $x[n]$ corresponding to the transform:

$$X(e^{j\omega}) = \cos^2 \omega + \sin^2 3\omega$$

Question # 4:

A particular LTI system is described by the difference equation:

$$y[n] + \frac{1}{4}y[n-1] - \frac{1}{8}y[n-2] = x[n] - x[n-1]$$

Find the impulse response $h[n]$ of the system.

Good Luck

