Program: BTECH (Electrical)
Semester – Spring 2018

ETSS-314 Signal & Systems

Assignment – 3   Due Date: 29/05/2018
Marks: 20   Handout Date: 22/05/2018

Question # 1:
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. (Discrete time Fourier Transform)

Question # 2:
Using partial fraction expansion and the fact that:

$$(a)^n u[n] \leftrightarrow \frac{1}{1-az^{-1}} \ , \ |z| > |a|$$

Find the inverse z-transform of:

$$X(z) = \frac{1-\frac{1}{3}z^{-1}}{(1-z^{-1})(1+2z^{-1})} \ , \ |z| > 2$$

Good Luck