ISRA UNIVERSITY
Islamabad Campus

Department of Electrical Engineering
Program: B.E. (Electrical)
Semester – Spring 2016

EL-322 Digital Signal Processing

Assignment – 2 **Due Date: 22/04/2016**
Marks: 10 **Handout Date: 18/04/2016**

Question # 1:

Determine the inverse z-transform, using the method of partial fractions:

$$X(z) = \frac{1 - \frac{1}{2}z^{-1}}{1 + \frac{3}{4}z^{-1} + \frac{1}{8}z^{-2}}, \qquad |z| > \frac{1}{2}$$

Question # 2:

The continuous time signal

$$x_c(t) = cos(4000\pi t)$$

Is sampled with a sampling period T to obtain a discrete-time signal:

$$x[n] = cos\left(\frac{\pi n}{3}\right)$$

a) Determine a choice for T consistent with this information.
b) Is your choice for T in part (a) unique? If so, explain why. If not, specify another choice of T consistent with the information given.

Good Luck