**Islamic University of Technology     (IUT)                    CSE Department**

| CSE 4733 **Digital Image Processing** | **Quiz #04** | Date: |
|---|---|---|
| Time: 20 Minutes | Marks: 15 | **ID:** |

**Questions:**

1.  Consider the two images given in Figure 1.                                          5
                                                                                       [CO2,
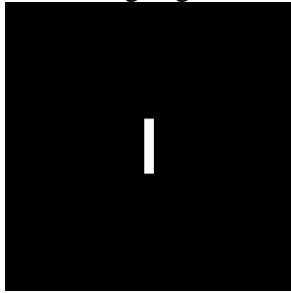                                                                                        PO2]



(a)                                              (b)

Figure 1: (a) Original image (b) Image where the object's position has been shifted.

The spectrum values of the DFT *F(u,v)* of the above two images will be identical. In other words, magnitude of *F(u,v)* is independent of translation. However, the Fourier values will be different. Explain the difference.

2.  Why do Ringing effects appear in the output image if an Ideal filter is applied?     5
                                                                                       [CO1,
                                                                                        PO1]

3.  Why can you compute the 2D Fourier Transform by first computing a 1D Fourier         5
    transform along the individual rows of an input image, followed by performing      [CO1,
    another 1D Fourier transform along the columns of the results from the first        PO1]
    transform output.