Faculty of Electrical & Electronics Engineering

DIGITAL SIGNAL PROCESSING

CHAPTER 4: System Representation

QUIZ 5 (10 Marks)

Name: _____   **Date: _____**

Question

The input signal, x(n) and output, y(n) to describe the LTI system are shown below:

$$y(n) - 4y(n\text{-}1) + 4y(n\text{-}2) = x(n) - x(n\text{-}1)$$

$$x(n) = (\text{-}1)^n\, u(\text{n})$$

Determine the following:

(i)   Type of the system response.
(ii)   Transfer function of the system, H(z).
(iii)   Impulse response of the system, h(n).
(iv)   The new difference equation, y(n) when the input changes.