Excellent quality (typeset work): recommended!

ble

$$X(z) = \frac{1}{1 - .5z^{-1}}, \ |z$$

roblem 2

$$X(z) = \sum_{n=-\infty}^{\infty} a^{|n|}$$

$$X(z) = \sum_{n=-\infty}^{-1} (az)^{-n} +$$

$$X(z) = \sum_{n=0}^{\infty} (az)^{n} - 1 +$$

$$X(z) = \frac{1}{1 - az} - 1 +$$

$$X(z) = \frac{1 - a^2}{(1 - az)\left(1\right.}$$

$$ROC: |a| < |z| <$$

Good quality (handwritten work): Acceptable

$Y_d(e^{j\Omega T})$; $|\Omega| < \pi/T$

$)$; otherwise

$) = T \times H_d(e^{j\Omega T}) \times \frac{1}{T} X_c(j\Omega)$

$= H_d(e^{j\Omega T}) X_c(j\Omega)$, $|\Omega| < \pi/T$

$\frac{\Omega)}{j\Omega)} = H_d(e^{j\Omega T})$

$\frac{\Omega T/2 - e^{-j\Omega T/2}}{T}$

$\frac{j\sin(\Omega T/2)}{T}$; $|\Omega| < \pi/T$

$n(\Omega T/2)$; $|\Omega| < \pi/T$

Poor quality (handwritten work): Unacceptable!

-- Use darker pencil and improve the scan image quality

ausal LTI system with input X[n] and ou

cribed by Y[n] = 2y[n-1] + X[n]. Find the In

ce of the system h[n]. Is the System Stable

$y[n-1] + X[n]$

Z tranformation

$2z^{-1}Y(z) + X(z)$

$z^{-1}Y(z) = X(z)$

$2z^{-1}] = X(z)$

$$\frac{(z)}{(z)} = \frac{1}{1-2z^{-1}}$$

$, z^{-1}$ - z^{-1} transformation

Not converted to black-and-white images, hand-to read handwriting (handwritten work): Unacceptable!

The given sequence is non-z

otherwise the sequence is,

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

To find the Z-transform, we

$$X(z) = \cancel{-\left(\frac{1}{2}\right)^n} \sum_{n=-\infty}^{\infty} x[n$$

Since $x[n] = 0$ for $n \geq 0$, w

$n = -\infty$ to -1

$$X(z) = \sum_{n=-\infty}^{-1} -\left(\frac{1}{2}\right)^n$$

we can change the index $k =$

Standard geometric series

$$k = -n \Rightarrow n = -k,$$