Lecture 11 Discrete-Time IIR Filters (Part 1) Prof. Brian L. Evans Notes by Mr. Houshang Salimian Fall 2018 EE 313 Linear Systems and Signals Impulse Response The University of Texas at Austin Response to an impulse let xin] = SEn7, S[n]S[n] ], hEn) yEn] XLTI -2 -1 0 2 LTI #3 5[n]+ b1 5[n-1] ງ*[n*] X[n] LTI h[m] SENT #2  $h[n] = b_{1}(a_{1}) u[n] + \frac{b_{1}}{b_{1}}(b_{2}(a_{1}) u[n-1])$ Initial condition in the delay block usn  $a^{n}\overline{z}^{n} = a^{n}\left(\frac{1}{z}\right)^{n} = \left(\frac{a}{z}\right)^{n}$ • • • 1.50 -2 -1 2 3 10 1 Imfz] > Refz] [2] > la1 1 cd

١, LTI 7 y(n)=×[n]×h[n] × Enj H(z) = X(z) = X(z) + (z) = Y(z)X(z) = X(z)X(2) - 1. L'ANT DU-