Sistema de lazo cerra do

Para el caso (-,+) Tenenos que el diagrama de ploques es $\frac{1}{100} = \frac{1}{100} = \frac{1}$ Para GCS): Para H(S): $H(S) = \frac{B(S)}{C(S)} \stackrel{(2)}{=} C(S) \cdot H(G) = B(S) \stackrel{(2)}{=} C(S)$ Para Ecs): (EGS) = BGS) - RGS) (3) sustituyende (2) en la éconcién (3) $E(S) = C(S) + I(S) - R(S) \dots (4)$ Sus to tuyende (4) en la eccacion (1) [ccs) Ha) - mas) (ccs) = ccs) GCS)·C(S)·H(S) - R(S) G(S) = C(S) (6CS). (CS) H(CS) - (CCS) = (R(CS): (GCS)

C(S) [G(S) + (G) - 1] = R(S) G(S)

$$\frac{G(S)}{R(S)} = \frac{G(S)}{G(S) + (G) - 1}$$
Fit de lazo (covado pava (-1+))

Pava el caso (+,+)

Te rerus que el diagrama de bloques es

$$\frac{R(S)}{R(S)} = \frac{E(S)}{E(S)}$$
Pana G(S):
$$G(S) = \frac{C(S)}{E(S)} = \frac{E(S)}{E(S)}$$
Fana H(S)

$$H(S) = \frac{B(S)}{C(S)} = C(S) + |CS| = B(S) - (CA)$$
Pana E(S)

Pana E(S)

$$R(S) = \frac{C(S)}{C(S)} = \frac{C(S)}{C(S)} + |CS|$$

Pam ECS) ECS) = $R(S) + R(S) \dots (B)$ Sos ti togendo (D) en la ecvación (B) ECS) = $R(S) + C(S) H(S) \dots (C4)$

Swith togendo (4) en la ecración (1) [RG) + GG) HG)]. GGD = CG) RCS) 6(S) + (CCS) +1(S) G(S) = (CCS) C(s) H(s) G(s) - C(s) = - R(s) G(s) C(S)LH(S)G(S)-IJ=-R(S)G(S) $\frac{C(s)}{P(s)} = \frac{-6(s)}{+1(s)6(s)-1} = \frac{-6(s)}{(-1)(1-1)(s)6(s)} = \frac{-6(s)}{1-1(s)6(s)}$ F. T de lazo Coveado para Para el coso (=,-) de bloque Tenemos que el d'agrama $\frac{R(S)}{R(S)} = \frac{E(S)}{R(S)} = \frac{E(S)}{R(S)}$ $\frac{E(S)}{R(S)} = \frac{E(S)}{R(S)} = \frac{E(S)}{R(S)}$ $G(S) = \frac{G(S)}{E(S)} \implies E(S) \cdot G(S) = C(S) \cdot ... \cdot (H)$ $H(S) = \frac{B(S)}{C(S)} = 7 C(S) H(S) = B(S) \dots (2)$ Para HCS)

Para Ecs) $E(S) = R(S) + R(S) + R(S) = \frac{1}{2}$ Swittegen de (2) en la ecracion (3) E(s) = R(s) + C(s). + (cs). -. (4) Sustituyendo (4) en la eccusion (1) [ACO) + COS) + C [R(s) 6(s) + (cs) + (cs) + (cs) = (cs) -ccs) + ccs) +1co) 6co) = - Rcs) 6co) CCO) [-1+ HCO) GCO)] = - BCO) GCO) $\frac{C(S)}{C(S)} = \frac{-6(S)}{-1+H(S)6(S)} = \frac{-6(S)}{-1)(1-H(S)6(S))}$ (CS) = 6(S) F. T. de laza (Cerrado para C-,-)