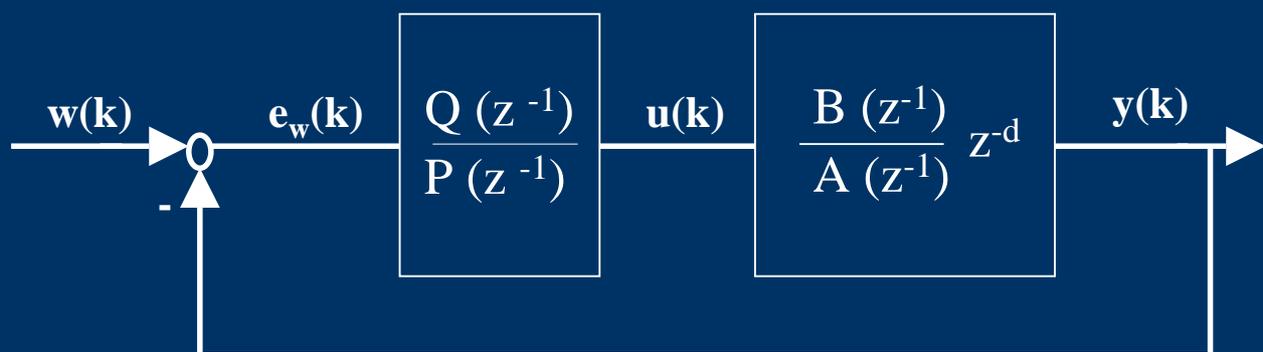




REGULADORES DE ASIGNACIÓN DE POLOS

ASIGNACIÓN DE POLOS ESTRUCTURA SIMPLE



$$M(z^{-1}) = \frac{Q(z^{-1}) B(z^{-1}) z^{-d}}{A(z^{-1}) P(z^{-1}) + z^{-d} B(z^{-1}) Q(z^{-1})} = \frac{N(z^{-1}) z^{-d}}{L(z^{-1})}$$

$$A(z^{-1}) P(z^{-1}) + z^{-d} B(z^{-1}) Q(z^{-1}) = L(z^{-1})$$

ASIGNACION DE POLOS ESTRUCTURA SIMPLE (II)

Donde:
$$L(z^{-1}) = \prod_{i=1}^l (1 - z_i \cdot z^{-1})$$

$$L(z^{-1}) = 1 + l_1 \cdot z^{-1} + l_2 \cdot z^{-2} + \dots + l_l \cdot z^{-l} = 0$$

Los coeficientes de los polinomios incógnita se determinan mediante:

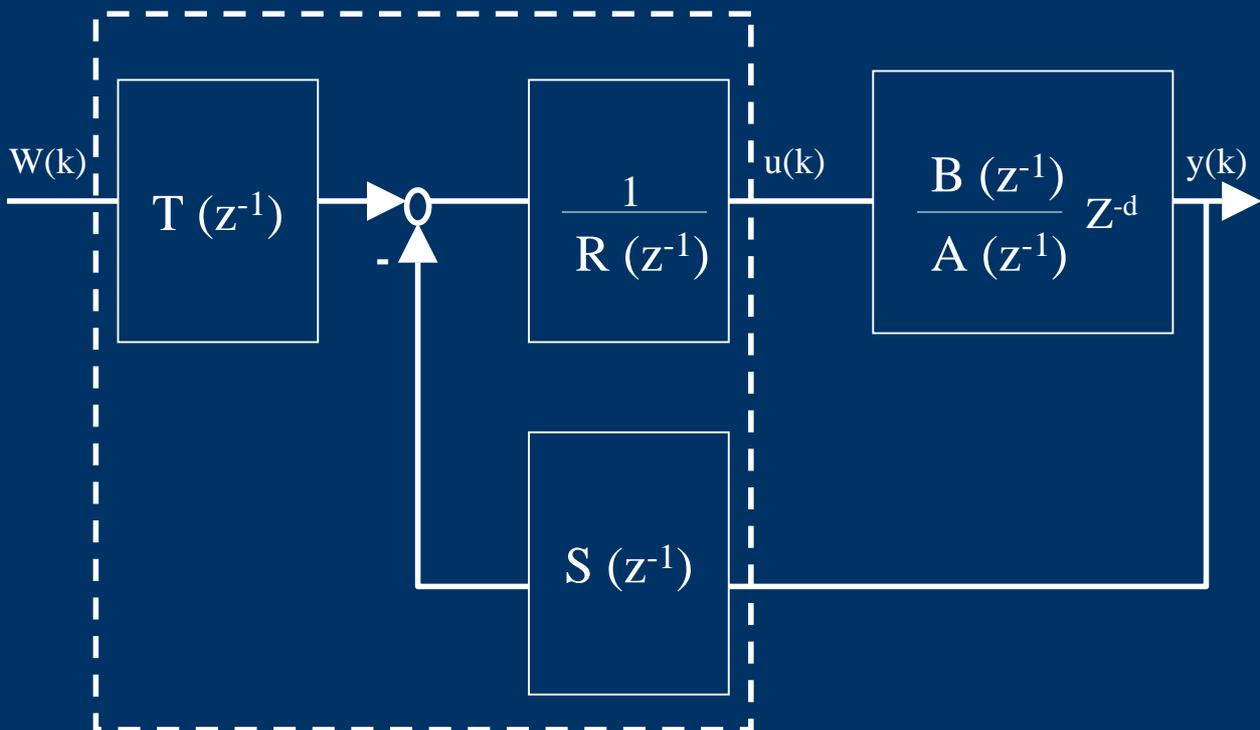
$$(1 + a_1 \cdot z^{-1} + \dots + a_m \cdot z^{-m})(1 + p_1 \cdot z^{-1} + \dots + p_p \cdot z^{-p}) + z^{-d} (b_1 \cdot z^{-1} + \dots + b_m \cdot z^{-m})(q_0 + q_1 \cdot z^{-1} + \dots + q_q \cdot z^{-q}) = 1 + l_1 \cdot z^{-1} + l_2 \cdot z^{-2} + \dots + l_l \cdot z^{-l} = 0$$

Para que en régimen permanente la variable de salida siga exactamente a la referencia, es necesario que:

$$M(1)=1 \text{ ó } P(1) A(1)=0$$

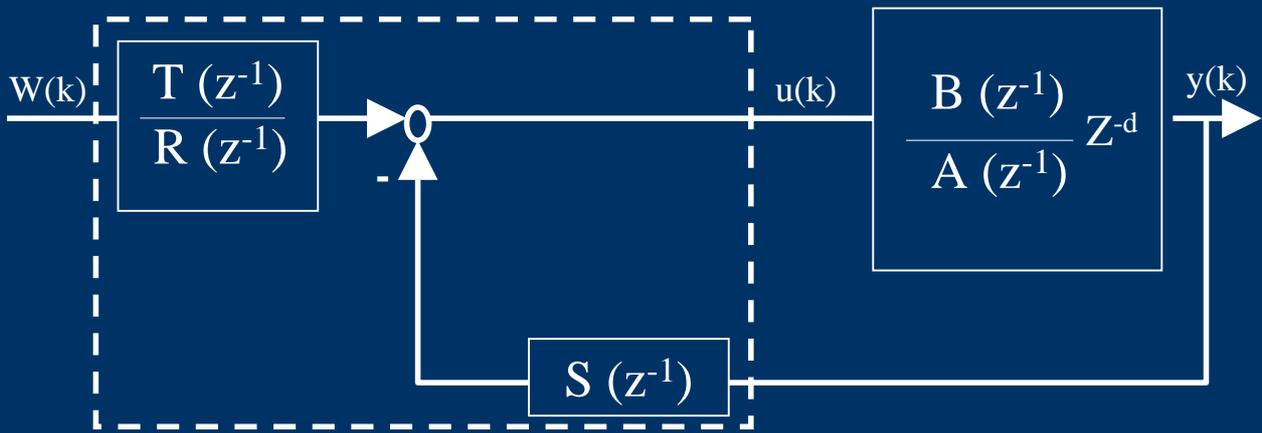
Esto implica, si $A(1) \neq 0$, que:
$$\sum_{i=1}^{m+d} p_i = -1$$

DIAGRAMA DE BLOQUES ESTRUCTURA COMPLETA



$$R(z^{-1}) u(k) = T(z^{-1}) W(k) - S(z^{-1}) y(k)$$

REPRESENTACIÓN CON DOS CAJAS

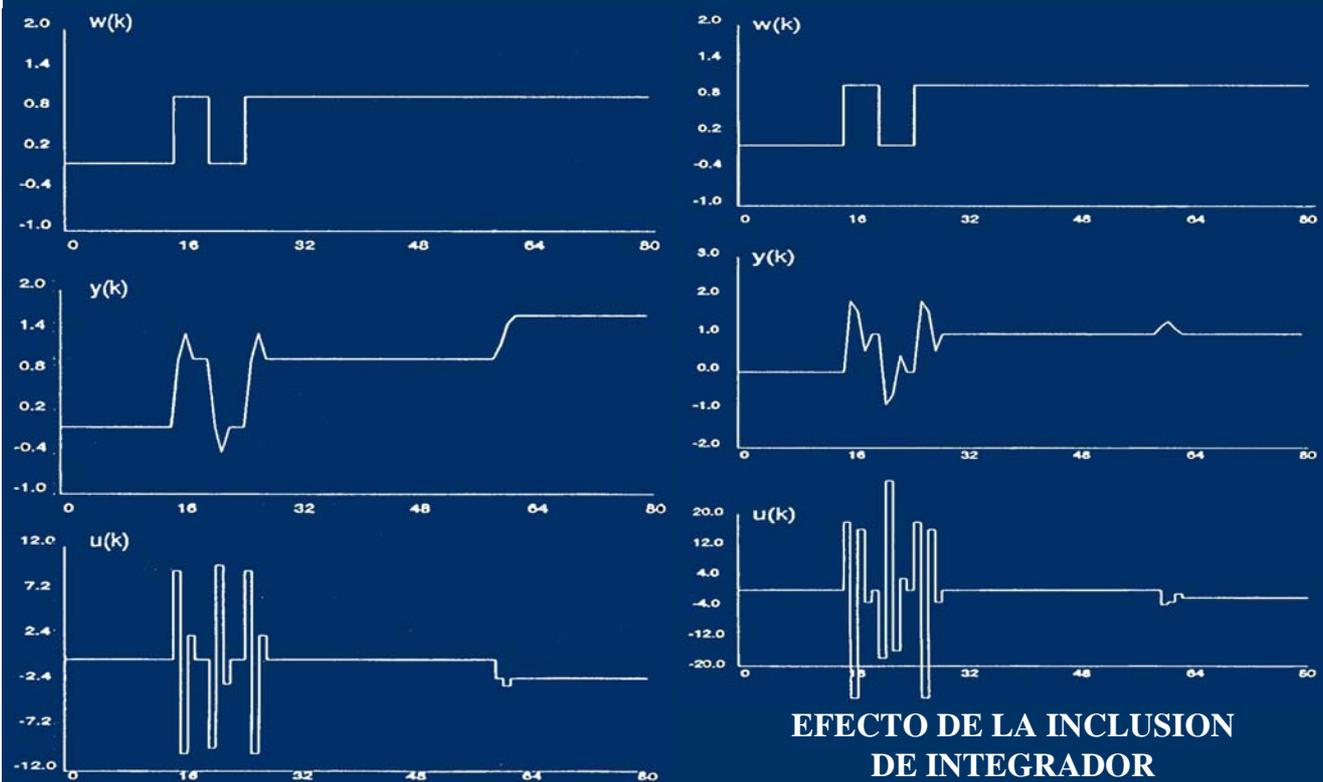


$$M(z^{-1}) = \frac{T(z^{-1}) B(z^{-1}) z^{-d}}{A(z^{-1}) R(z^{-1}) + z^{-d} B(z^{-1}) S(z^{-1})} = \frac{N(z^{-1}) z^{-d}}{L(z^{-1})}$$

En la relación anterior, se ve que los ceros del sistema en bucle cerrado son los ceros de $B(z^{-1})$ y los de $T(z^{-1})$, sin incluir las raíces del polinomio $S(z^{-1})$ resultante de la ecuación de asignación siguiente:

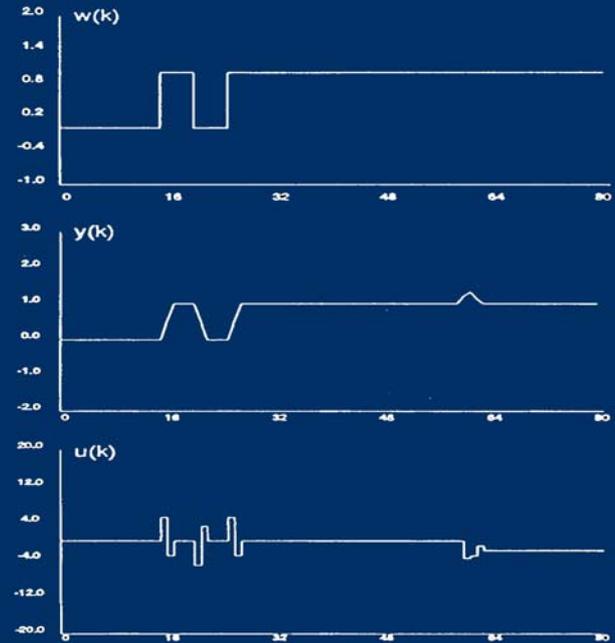
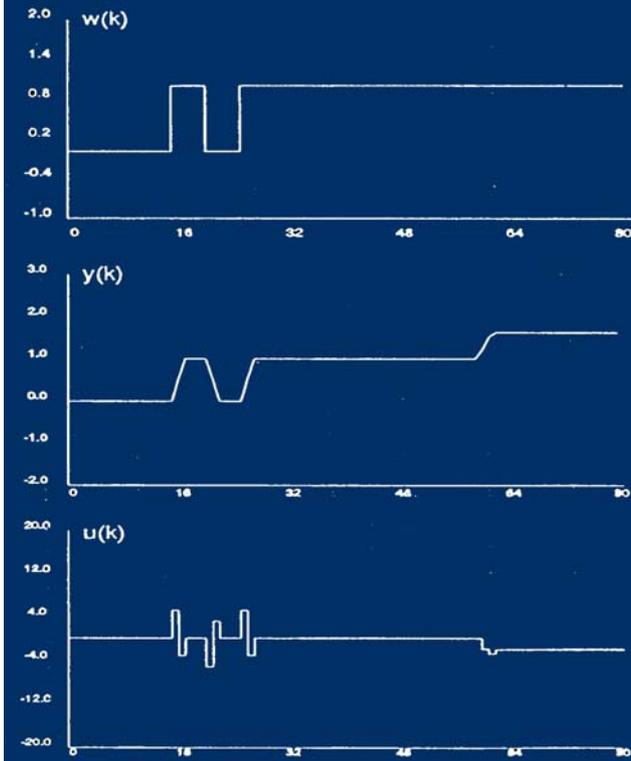
$$A(z^{-1}) R(z^{-1}) + z^{-d} B(z^{-1}) S(z^{-1}) = L(z^{-1})$$

ASIGNACION DE POLOS ESTRUCTURA SIMPLE



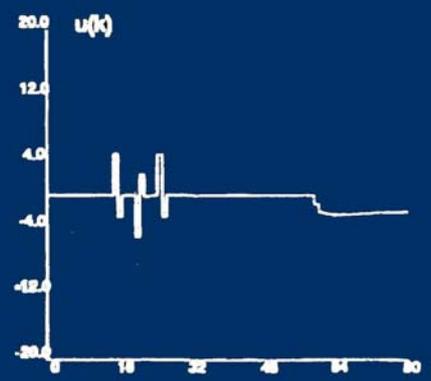
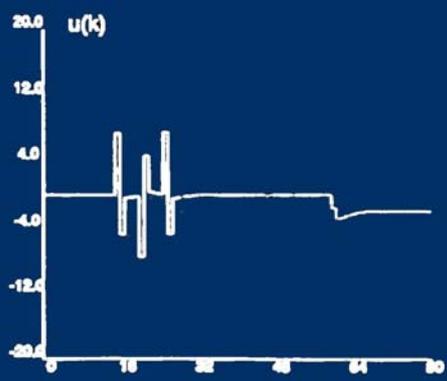
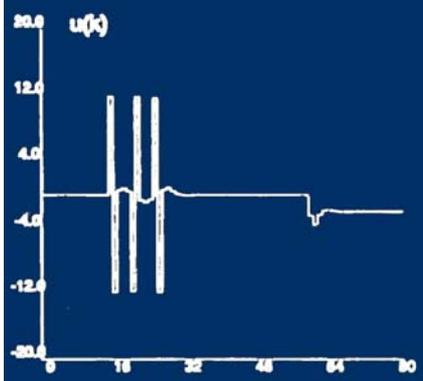
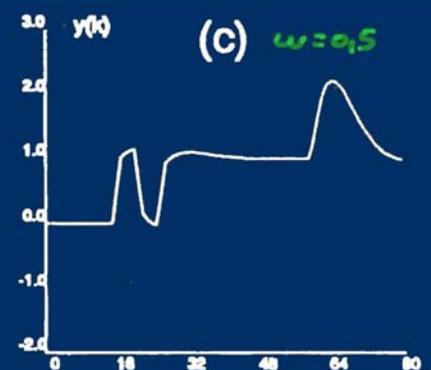
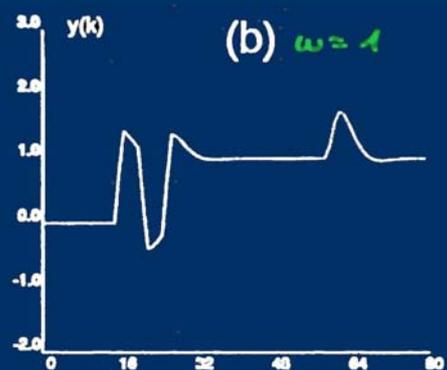
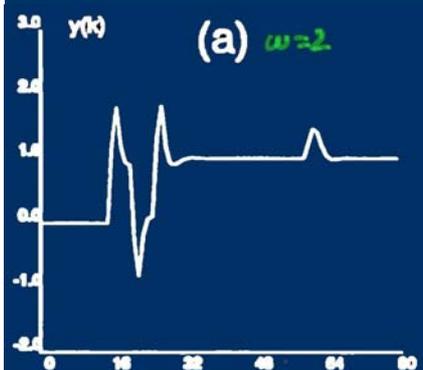
EFFECTO DE LA INCLUSION
DE INTEGRADOR

ASIGNACION DE POLOS ESTRUCTURA COMPLETA

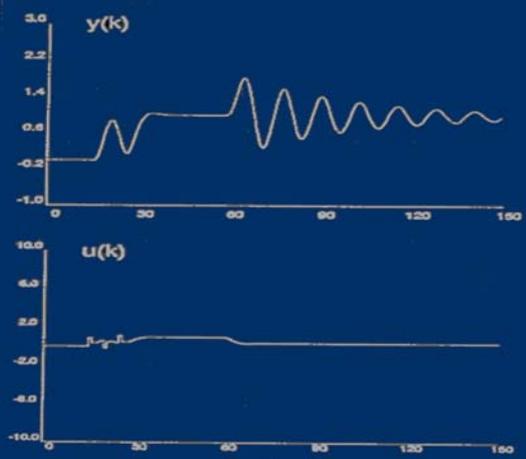


EFFECTO DE LA INCLUSION
DE INTEGRADOR

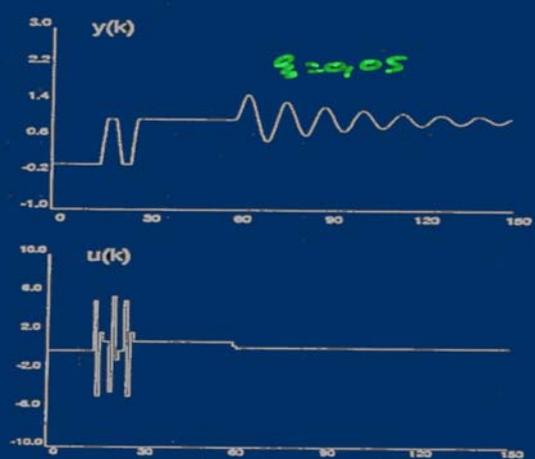
EFFECTO DEL CAMBIO DE ω EN LOS POLOS DOMINANTES



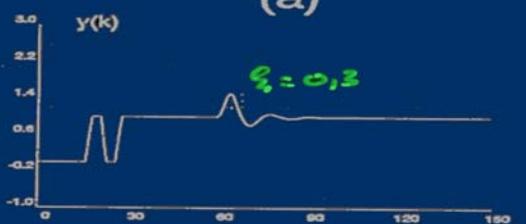
DISEÑO DE RECHAZO DE BANDA



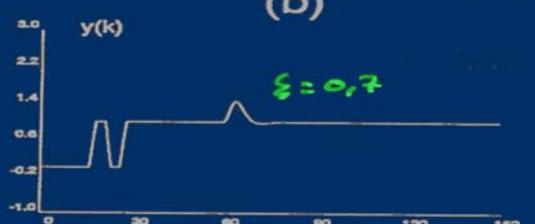
(a)



(b)

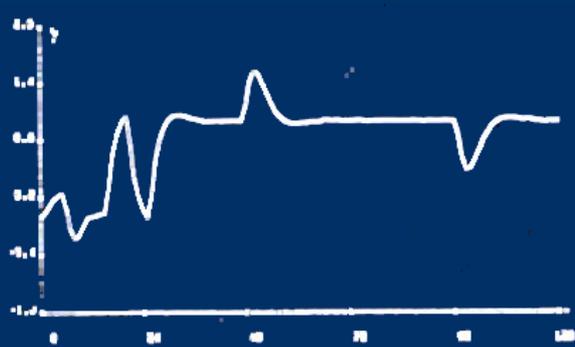


(c)

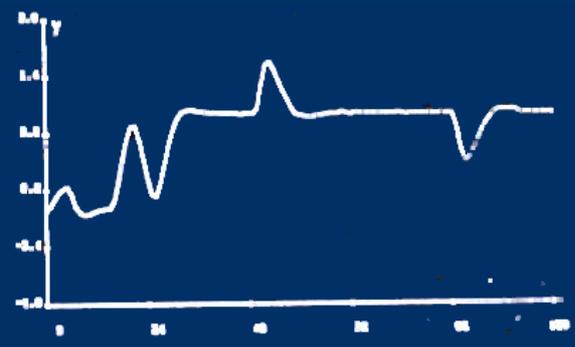


(d)

EFFECTO DE LA PERTURBACIÓN DETERMINISTA EN APN/APA



a



b

CAMBIO DE A_m EN TIEMPO REAL EN APN/APA

