

$$= a(a+d_1)[a^2+d, a+d_0]$$

R. 8
EE610
10/16/00

$$+ 1 \cdot d_0 \cdot [a^2+d, a+d_0]$$

$$= [a(a+d_1) + d_0]^2 = (a^2+d, a+d_0)^2$$

when for

$$T(a) = C(aI_4 - A)^{-1}B$$

$$= \frac{C \cdot 1}{(a^2+d, a+d_0)^2} \begin{bmatrix} \text{vector} \\ \times \\ \times \\ \times \\ \times \\ \times \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 1 \end{bmatrix}$$

$\therefore$ need 4th column of $(aI_4 - A)^{-1}$

$(1,4), (2,4), (3,4), (4,4)$ entries

$$(1,4) \text{ entry} = (-1)^{1+4} (4,1) \text{ minor} =$$

$$= -1 \times \begin{vmatrix} -1 & 0 & 0 \\ a+d_1 & -1 & 0 \\ 0 & a & -1 \end{vmatrix} = (-1)(-1)(-1) = +1$$

$$(2,4) \text{ entry} = (-1)^{2+4} \begin{vmatrix} a & 0 & 0 \\ d_0 & -1 & 0 \\ 0 & a & -1 \end{vmatrix} = a$$