Solution - Quiz-5

For the $G_e(s) = \dfrac{10}{s^5 + 7s^4 + 6s^3 + 42s^2 + 8s + 56}$ find # of poles

on RHP using routh array.

Soln: Routh array

s^5	1	6	8
s^4	$\not{7}1$	$\not{42}6$	$\not{56}8$
s^3	0	0	0

Since the entire s^3 row becomes zero

Auxilary polynomial becomes

$$7s^4 + 42s^2 + 56 = 0$$

$$\dfrac{d}{ds}(7s^4 + 42s^2 + 56) = 0$$

$$\Rightarrow 28s^3 + 84s + 0 = 0$$

So updating the s^3 row we get

s^5	1	6	8
s^4	$\not{7}1$	$\not{42}6$	$\not{56}8$
s^3	$\not{28}1$	$\not{84}3$	0
s^2	3	8	0
s^1	$\dfrac{1}{3}$	0	0
s^0	8	0	0

No change in sign in I column of Routh Array.

∴ # of poles on RHP = $\boxed{0}$ Ans