Niloy Ahsan

21101255

Quiz – 2

(a) ~~Over~~ Given,

target value = 6

$\Rightarrow$ Overshoot $= \dfrac{9.2\cancel{9} - 6}{\cancel{86} \, 6} \times 100\%$

~~50~~

$= 53.33\%$ (Ans)

~~Rise time~~ now,

10% of final value = 0.6 ~~0.005~~

90% of final value = 5.4

4% of " " = 0.24

$\therefore$ rise time $= (0.18 - 0.05) = 0.13$ sec (Ans).

~~$\therefore$ settling time = 1.5 sec (Ans)~~

$\therefore$ settling time = 1.6 sec (Ans).

(b) we know,

$$\frac{U(s)}{E(s)} = \left(k_p + \frac{k_I}{s} + k_D s\right)$$

$k_p = 0.6 k$

$k_I = 2/p$

$k_d = P/8.$

also,

$K_p = 0.6 K = 0.6 \times 5 = 3$

$K_I = 2/p = 2/2 = 1$

$K_d = P/8 = 2/8 = 0.25$

(Ans.)

Given,

gain = 5

osci = 2

ot