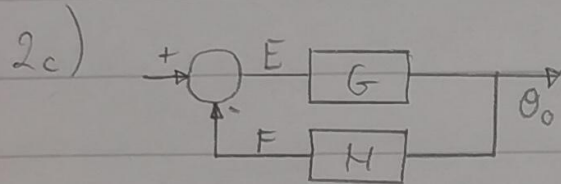


Control Exam

Arian

Mackford



12/02/21

$$G = \frac{\theta_o}{E} \Rightarrow E = \frac{\theta_o}{G}$$

$$H = \frac{F}{\theta_o} \Rightarrow F = H \times \theta_o$$

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$$E = \theta_i - F$$

$$\therefore \frac{\theta_o}{G} = \theta_i - H \times \theta_o \Rightarrow \frac{\theta_o}{G} + H \times \theta_o = \theta_i$$

$$\theta_o \left(\frac{1 + G \times H}{G} \right) = \theta_i$$

$$\therefore \frac{\theta_o}{\theta_i} = \frac{G}{1 + G \times H}$$

$$2d) \frac{\theta_o}{\theta_i} = \frac{5 \times 0.25}{1 + (5 \times 0.25 \times 0.15)} = 1.053 \text{ mm/V}$$

2e) Feed rate controller for a linear