



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

$$H = \frac{f}{\theta_o} \Rightarrow f = H \cdot \theta_o$$

$$\text{Now, } E = \theta_i - f$$

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

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

$$\text{Therefore, } \frac{\theta_o}{\theta_i} = \frac{G}{1 + G \cdot H}$$

$$\text{d) } \frac{\theta_o}{\theta_i} = \frac{G_1 \cdot G_2}{1 + G_1 \cdot G_2 \cdot H} = \frac{10 \times 2.5}{1 + (10 \times 2.5 \times 0.15)}$$

$$\therefore \frac{\theta_o}{\theta_i} = 5.2632 \text{ mm/v}$$

- e)
1. Baking process which is temperature controlled
 2. production line conveyor belt which is speed controlled.