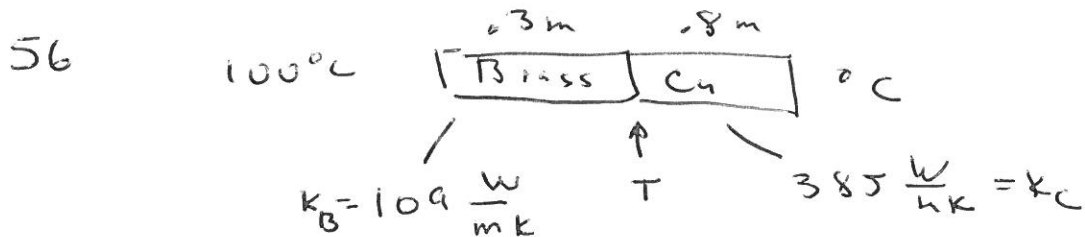


Class 27 ch 17 11, 56, 67

11  $\Delta T = 23^\circ\text{C}$   
 $L = 1410\text{ m}$   
 $\alpha = 1.2 \times 10^{-5}$

$$\Delta L = \alpha L \Delta T = .39\text{ m}$$



continuous flow  $\Rightarrow A k_B \frac{(100 - T)}{.3} = A k_C \frac{(T - 0)}{.8}$

$$.8 \frac{100 k_B / k_C}{.3} = T \left( 1 + \frac{.8}{.3} \frac{k_B}{k_C} \right)$$

$$.8 / .3 \cdot 100 \frac{109}{385} = T = 43$$

$$1 + \frac{.8}{.3} \frac{109}{385}$$

$.005\text{ m}^2$   
 $\downarrow$   
 heat flow =  $\frac{A k_C T}{.8} = 103.5\text{ W} \approx 334$   
 $\downarrow$

$\times 5\text{ min} = 300\text{ s} = 334 \times$

67  $V = .75 \times 10^{-3}\text{ m}^3 = \frac{4}{3} \pi r^3$   $x = 93\text{ g}$   
 $r = 5.64\text{ cm}$   
 $P = .6 \cdot 4\pi r^2 \sigma \left( (95 + 273)^4 - (20 + 273)^4 \right)$   
 $\uparrow$   
 $5.67 \times 10^{-8}$   
 $= 14.9\text{ W}$