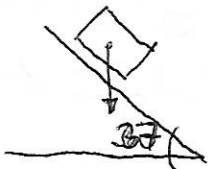


# EXAMEN PARCIAL

P1




$A = 6 \text{ pie}^2 = 0.56 \text{ m}^2$   
 $P_{\text{res}} = 500 \text{ lbf} = 2,224.11 \text{ N}$   
 $\mu = 1 \text{ Poise} = 0.1 \text{ N}\cdot\text{s}/\text{m}^2$   
 $V = 8 \text{ pie}/\text{s} = 2.44 \text{ m}^2/\text{s}$   
 $\theta = 37^\circ$

$$\tau = \frac{P \sin \theta}{A} = \mu \frac{V_0}{e}$$

$$e = \frac{\mu A V_0}{P \sin \theta}$$

$$e = \frac{0.1 \times 0.56 \times 2.44}{2224.11 \times 3/5} = 1.02 \times 10^{-4} \text{ m}$$

P2



$P_m = 20 \text{ kgf}/\text{cm}^2$   
 $T = 17^\circ\text{C}$   
 $R = 30 \text{ m}/\text{ok}$   
 $P_{\text{atm}} = 1.033 \text{ kgf}/\text{cm}^2$

$-5 \text{ kgf}$   
 $P = 5 \text{ kgf}/\text{cm}^2$   
 $T = 10^\circ\text{C}$

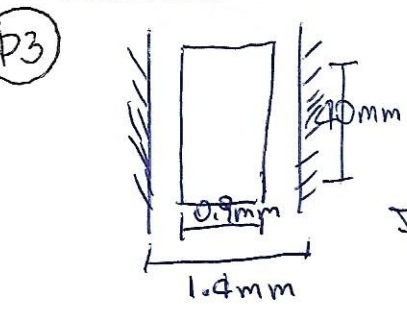
$$\delta_1 V - \delta_2 V = 0.5 \text{ kgf}$$

$$V = \frac{0.5}{(\delta_1 - \delta_2)}$$

$$\delta_1 = \frac{P}{RT_2} = \frac{21.033 \text{ kgf}/\text{cm}^2 \times 10^4}{30 \frac{\text{m}}{\text{ok}} \times 303.6 \text{ K}} = 23.09 \text{ kgf}/\text{m}^3$$

$$\delta_2 = \frac{P_2}{RT_2} = \frac{6.033 \times 10^4}{30 \times 283.6} = 7.09 \text{ kgf}/\text{m}^3$$

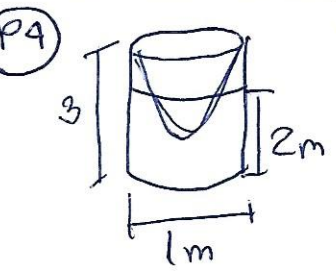
$$\therefore V = \left( \frac{0.5}{23.09 - 7.09} \right) = 0.03 \text{ m}^3$$



$\mu = 20 \text{ Centipoise} = 0.12 \text{ gr}/\text{cm}\cdot\text{seg}$   
 $V = 40 \text{ m}/\text{s} = 4000 \text{ cm}/\text{s}$   
 $e = \frac{1.4 - 0.9}{2} = 0.025 \text{ cm}$

$$F = \mu \frac{V_0}{e} \cdot 2\pi r h = \frac{0.12 \times 4000}{0.025} \times 2\pi \times 0.045 \times 4$$

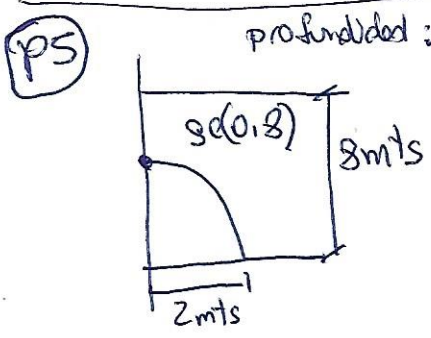
$$F = 36191.15 \text{ Dinor}$$



$\text{Vol peros.} = \text{Vol sin gva}$   
 $\frac{\pi r^2 h}{2} = \pi r^2 (3-2)$   
 $h = 2$

$$H = \frac{W^2 r^2}{2g} \Rightarrow W^2 = \frac{2gh}{r^2} = \frac{2 \times 9.8 \times 2}{0.5^2}$$

$$W = 12.52 \frac{\text{rad}}{\text{seg}} \times \frac{60}{2\pi} = 119.58 \text{ RPM}$$



profundidad: 5mts  
 $F_v = \delta V = 9810 \frac{\text{N}}{\text{m}^3} \times \left( 8 \times 2 - \frac{\pi \times 2^2}{4} \right) 5 = 630704.88 \text{ N}$   
 $F_H = (\delta \times h_c) \times A_{\text{proy}} = 9810 \times (6+1) \times (2 \times 5) = 686700 \text{ N}$   
 Linea Actua FH  
 $h_p = h_g + \frac{I_{cg}}{h_c a \times A_p} = 7 + \frac{\frac{1}{12} \times 2 \times 2^3}{7 \times 2 \times 2} = 7.05$

$$F = \sqrt{F_H^2 + F_v^2} = 932387 \text{ N}$$

$$\theta = \tan^{-1} \frac{63704.88}{686700} = 42.57^\circ$$