

You may use your books and notes. Your signature shows that you agree with the answers. No discussions are allowed between the different teams. Each team returns one signed copy to Prof. Burleigh. Do not go onto a second page.

Name	signature
	Solution

1 Use the electrochemical impedance (EIS) graph to determine the followin

a. What is R_s ? $R_s = 10 \Omega \cdot \text{cm}^2$

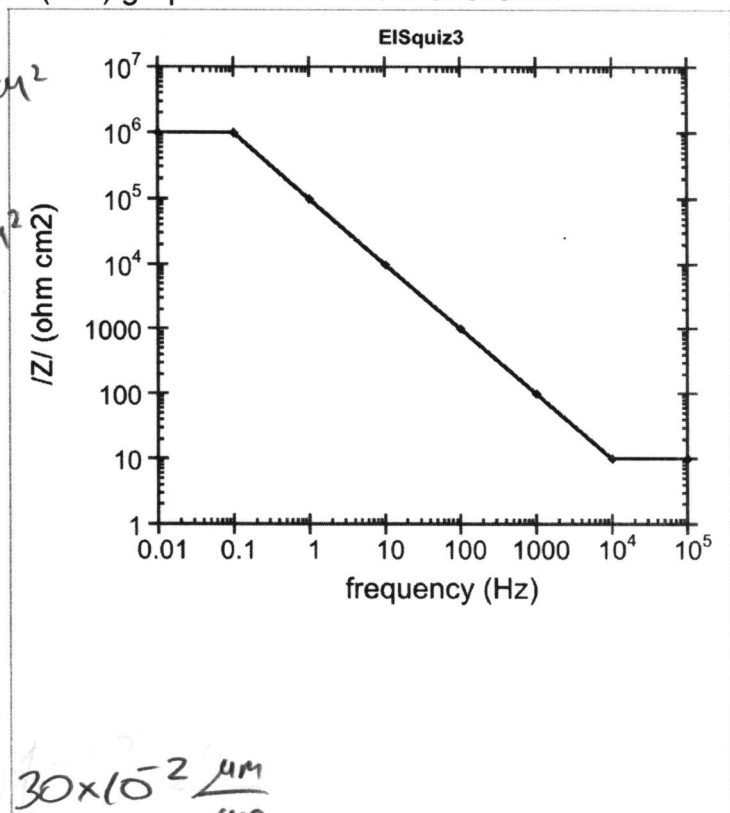
b. What is R_p ? $R_p = 10^6 \Omega \cdot \text{cm}^2$

c. If $B=0.03\text{V}$, what is i_{corr} ?

$$i_{\text{corr}} = \frac{0.030\text{V}}{10^6 \Omega \cdot \text{cm}^2} = 3 \times 10^{-8} \frac{\text{A}}{\text{cm}^2}$$

d. What is the approximate loss in thickness in $\mu\text{m}/\text{yr}$?

$$\left(3 \times 10^{-8} \frac{\text{A}}{\text{cm}^2} \right) \left(\frac{10 \frac{\mu\text{m}}{\text{yr}}}{10^{-6} \frac{\text{A}}{\text{cm}^2}} \right) = 30 \times 10^{-2} \frac{\mu\text{m}}{\text{yr}}$$



Corrosion rate = $0.3 \frac{\mu\text{m}}{\text{yr}}$ slow