Answer the following questions:

1-

a. **write what you know about :**

- **Atmospheric corrosion**
- **Dezinfication and parting corrosion**
- **Anodic corrosion control**
- **Effect of oxygen on the corrosion rate**

b. (in Volts) in deaerated water of pH= 7 .Assume corrosion products : H_2 and Ni $(OH)_2$, the solubility product ($k_s p$) of which is 2.0 x10^{-16} ,and $E^o_{Ni/\ Ni+2}$ = -0.25V.

2-

a. Explain the thermodynamic approach on the corrosion reactions , Confirm by examples.

b. **Calculate E^o for the following reaction :**

$Fe^{+2} + 2H_2O \rightarrow Fe(OH)_2 + 2H^+$

The stander chemical potentials for the species involved in (kJ) are :

Fe^{+2} =-20310 , H_2O = -5650 , $Fe(OH)_2$ = -115200 and H^+ = 0.0

The (F) Faraday is 96500 Coloum, at what pH the equilibrium is found.

3-

a. **Discuss the adsorption theory to explain the corrosion and corrosion prevention, use the adsorption inhibitors as an important source of inhibitors**
b. **Electrolytic process by anodizing to protect metals from corrosion**

Good Luck

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