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Unit 11 - Week 9

Assignment 9

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-04-03, 23:59 IST.**

1) Compute the electrode potential of the following electrode at *1 point*

Pt (s) | Fe^{3+} (a=0.05), Fe^{2+} (0.01); E^0 = 0.771 V

- 0.512 V
- 0.812 V
- 0.356 V
- 0.428 V

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.812 V

2) Calculate the electrode potential of the following: *1 point*

Cl^- ($a_{\pm}$=0.95), AgCl (s), Ag; E^0 = 0.2224 V

- 0.2237 V
- 0.5574 V
- 0.1111 V
- 0.8866 V

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.2237 V

3) Compute the electrode potential of the following electrode at *1 point*

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.607 V

4) For the given cell at 25^{O}C, ***1 point***

Pb | Pb $(NO_3)_2$ (0.11m) || $AgNO_3$ ($a_{\pm}$=1) | Ag

E_{cell}= 0.9647 V. Calculate $\gamma_{\pm}$ for the Pb $(NO_3)_2$ solution from the e.m.f data given $E^0_{Pb^{2+}|\,Pb}$ = -0.126 V and $E^0_{Ag^{+}|\,Ag}$ = 0.7991 V

- -0.2255
- -0.8744
- 0.5566
- 0.3681

No, the answer is incorrect.
Score: 0

Accepted Answers:
-0.8744

5) Find out $E^0_{Fe^{3+}|\,Fe}$. Given $E^0_{Fe^{2+}|\,Fe}$ = - 0.44 V and $E^0_{Fe^{3+}|\,Fe^{2+}}$= 0.77 V ***1 point***

- -0.037 V
- 0.773 V
- 0.995 V
- 0.112 V

No, the answer is incorrect.
Score: 0

Accepted Answers:
-0.037 V

6) For the cell ***1 point***

Zn (s) | Zn^{2+} ($a_{\pm}$=0.05) || Cu $^{2+}$ ($a_{\pm}$=0.01) | Cu (s)

Calculate the value of E^o_{cell} at 25 ^{O}C. Given $E^o_{Zn^{2+}|\,Zn}$ = - 0.776 V and $E^o_{Cu^{2+}|Cu}$ = 0.337 V

- 0.112 V
- 1.113 V
- 0.298 V
- 0.414 V

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.113 V

7) For question 6, calculate the value of ΔG^o, equilibrium constant and the value of ΔG when one Faraday of electricity is withdrawn from the cell ***1 point***

- -20.48 J mol^{-1}, 5.554 x 10^{3}, -10536 kJ mol^{-1}
- -33.78 kJ mol^{-1}, 3.462 x 10^{10}, -10.536 kJ mol^{-1}
- -214.78 kJmol^{-1} ,4.455 x 10^{37}, -105.36 kJ mol^{-1}
- -2 kJmol^{-1},2.365 , -105.36 kJ mol^{-1}

No, the answer is incorrect.
Score: 0

Accepted Answers:
-214.78 kJmol^{-1} ,4.455 x 10^{37}, -105.36 kJ mol^{-1}

8) Which of the following statements is incorrect? ***1 point***

- Type I solutes have more concentration in bulk than on the surface
- Type II solutes have more concentration on surface than in bulk
- Type III solutes (surfactants) have a positive value of slope for plot of γ versus concentration
- Type I solutes have a positive value of slope for plot of γ versus concentration

No, the answer is incorrect.
Score: 0

Accepted Answers:
Type III solutes (surfactants) have a positive value of slope for plot of γ versus concentration

9) Calculate the equilibrium constant of the following reaction at 25°C from standard potential data: ***1 point***

$$Sn(s) + Sn^{4+}(aq) \rightleftharpoons 2\,Sn^{2+}(aq)$$

Given $E^{o}_{Sn^{2+}|Sn}$ = -0.14 V and $E^{o}_{Sn^{4+}|Sn^{2+}}$ = 0.15 V

- 6.5 X 10^{5}
- 6.5 X 10^{9}
- 6.5 X 10^{6}
- 6.5

No, the answer is incorrect.
Score: 0

Accepted Answers:
6.5 X 10^{9}

10) Devise cell in which the following is the reaction and calculate the standard emf: ***1 point***

$$2\,AgCl(s) + H_2(g) \rightarrow 2\,HCl(aq) + 2\,Ag(s)$$

Given $E^{o}_{Cl^{-}|AgCl(s)|Ag(s)}$ = 0.22 V and $E^{o}_{Pt(s)|H_2(g)|H^{+}}$ = 0.0 V

- Pt | H_2 (g) | H^{+} (aq) |AgCl (s) | Ag(s) , 0.22 V
- Pt | H_2 (g) | H^{+} (aq) |AgCl (s) | Ag(s) , 0.55 V
- Pt | H_2 (g) | H^{+} (aq) |AgCl (s) | Ag(s) , 0.88 V
- Pt | H_2 (g) | H^{+} (aq) |AgCl (s) | Ag(s) , 0.99 V

No, the answer is incorrect.
Score: 0

Accepted Answers:
Pt | H_2 (g) | H^+ (aq) |AgCl (s) | Ag(s) , 0.22 V

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