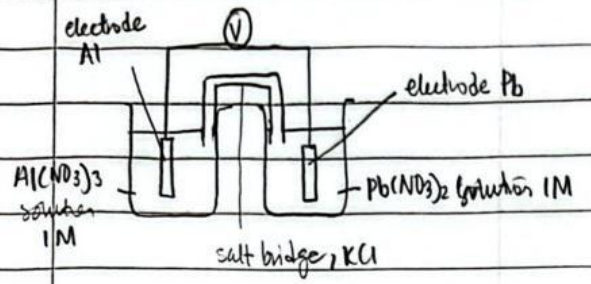
Date:

1. A galvanic cell consists of an Al electrode in 1.0M $Al(NO_3)_3$, a Pb electrode in 1.0M $Pb(NO_3)_2$ & a KCl salt bridge

a) draw & label the cell diagram



(ii) State the function of salt bridge

- ~~two~~ to seperated between two electrolytes
- to complete the circuit by allowing the ions to move between two electrolytes.

(iii) write the half-cell & overall cell reaction equation.

oxidation: $(Al \rightarrow Al^{3+} + 3e) \times 2$ $2Al \rightarrow 2Al^{3+} + 6e$

reduction: $(Pb^{2+} + 2e \rightarrow Pb) \times 3$ $3Pb^{2+} + 6e \rightarrow 3Pb$

(iv) write cell notation

$2Al(s) | 2Al^{3+}$ (aq, 1.0M) || $3Pb^{2+}$ (aq, 1.0M) | 3Pb

(v) calculate the standard cell potential

$E^\circ cell = (-0.14) - (-2.37)$

$= 2.23V$

(iv) which electrode will increase in weight?

Explain your answer

electrode Pb, because Pb^{2+} ~~receive~~ accept 2electrons to become Pb atom.

2. Standard electrode potentials for $Ag^+|Ag$ & $Pb^{2+}|Pb$ are +0.799V and -0.126V respectively

(i) anode: ~~$Pb(s) | Pb^{2+}$~~ $Pb \rightarrow Pb^{2+} + 2e$

cathode: $Ag^+ + e \rightarrow Ag$

(ii) calculate the standard cell potential

Eo cell: $+0.799 - (-0.126)$

$= 0.925V$

(iii) write the cell notation

$Pb(s) | Pb^{2+}(aq) || 2Ag^+ | 2Ag$

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