

**AL Chemistry**  
**Redox Equilibrium (Part 2)**  
**Exercise 2**

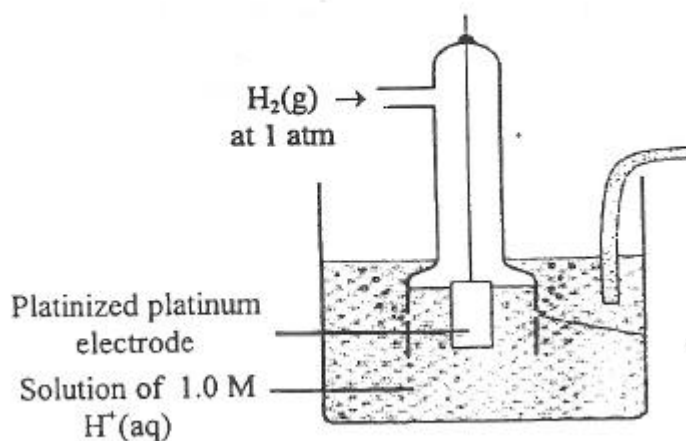
Name : \_\_\_\_\_ ( )

Class : \_\_\_\_\_

Date : \_\_\_\_\_

**HKAL 2000 Paper II Q. 3d**

(d) (i) Standard hydrogen electrode :



(1 mark for the diagram; 1 mark for the labels.)

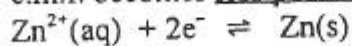
(Deduct ½ marks for missing out each of the following labels: platinised platinum (electrode) / Pt / platinum / platinum black; H<sub>2</sub>(g) at 1 atm; solution of 1.0 M H<sup>+</sup>(aq). Maximum deduction 1 mark.)

E<sup>⊖</sup> of a standard hydrogen electrode is taken as 0.0000 V.

(ii) Zn(s) | Zn<sup>2+</sup>(aq, 1.0M) || H<sup>+</sup>(aq, 1.0M) | H<sub>2</sub>(g, 1atm) | Pt(s)  
 or Zn(s) | Zn<sup>2+</sup>(aq, 1.0M) || 2H<sup>+</sup>(aq, 1.0M) | Pt(s) | [H<sub>2</sub>(g, 1atm)]

(iii) +0.76 V if hydrogen electrode is on RHS.  
 or, -0.76 V if hydrogen electrode is on LHS

(iv) e.m.f. becomes less positive/decreases



When [Zn<sup>2+</sup>(aq)] increases, the equilibrium shifts to the right, the electrode of the Zn<sup>2+</sup>(aq)|Zn(s) half-cell becomes less negative.

4

1

1  
(1)

½  
½

(5)