

19.1 Electrochemical Cells

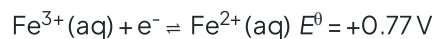
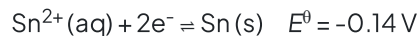
Question Paper

Course	DP IB Chemistry
Section	19. Redox Processes (HL only)
Topic	19.1 Electrochemical Cells
Difficulty	Medium

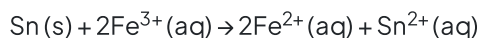
Time allowed: 10
Score: /5
Percentage: /100

Question 1

Use the following electrode potentials to answer the question.



What will be the EMF, in V, when the following voltaic cell is connected?



- A. -0.91
- B. +0.63
- C. +1.68
- D. +0.91

[1 mark]

Question 2

Which of the following reactions could take place at the positive electrode (cathode) in a voltaic cell?

- I. $\text{Cu}^{2+}(\text{aq})$ to $\text{Cu}(\text{s})$
- II. $\text{Br}_2(\text{g})$ to $\text{Br}^{-}(\text{aq})$
- III. $\text{Co}^{3+}(\text{aq})$ to $\text{Co}^{2+}(\text{aq})$

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

[1 mark]

Question 3

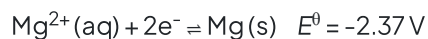
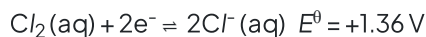
What is true when aqueous copper(II) sulfate is electrolysed using platinum electrodes?

- A. H_2 and O_2 are produced in a 2:1 mole ratio
- B. Cu and O_2 are produced in a 2:1 mole ratio
- C. H_2 and O_2 are produced in a 1:1 mole ratio
- D. Cu and O_2 are produced in a 1:1 mole ratio

[1 mark]

Question 4

Use the following electrode potentials to answer the question.



Predict what happens when some powdered zinc is added to aqueous magnesium chloride?

- A. There is no reaction observed
- B. Bubbles of chlorine gas will be seen
- C. Magnesium metal will be produced
- D. Zinc chloride will be produced

[1 mark]

Question 5

Which of the following electrolytic cells would give the greatest mass of metal at the cathode?

	Current	Time	Solution
A.	1.5	250	1.0 mol dm ⁻³ AgNO ₃ (aq)
B.	1.0	750	1.0 mol dm ⁻³ CuSO ₄ (aq)
C.	2.0	250	1.0 mol dm ⁻³ AgNO ₃ (aq)
D.	1.0	500	1.0 mol dm ⁻³ CuSO ₄ (aq)

[1 mark]