2.15 Electrolysis: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Halogen gases are produced at the anode when halide salts are electrolysed in aqueous solution.

(a) Give the name of the halogen gas produced at the anode when potassium iodide solution is electrolysed. **(1)**

(b) Give the observable appearance of the halogen produced in part a at room temperature. **(1)**

(Total for Question 1 is 2 marks)

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2 A student electrolyses molten sodium chloride to produce sodium metal and chlorine gas.

(a) State the ion that migrates to the cathode in molten sodium chloride. **(1)**

(b) Write the half-equation that occurs at the cathode to form sodium metal from Na^+ ions. **(1)**

(Total for Question 2 is 2 marks)

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3 An electrolysis cell has two electrodes connected to a d.c. power supply.

(a) State the name given to the negative electrode. **(1)**

(b) State the name given to the positive electrode. **(1)**

(c) State whether positive ions or negative ions move towards the cathode during electrolysis, and explain why. **(2)**

(Total for Question 3 is 4 marks)

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Mark scheme · 2.15 Electrolysis: 10-minute Pack

Question 1

(a) iodine (I_2) cao **B1**

(a) Answer: Iodine (I_2).

(b) dark grey (grey-black) solid at room temperature; also accept brown solution in water or purple vapour on warming (any acceptable description of iodine) **B1**

(b) Answer: Dark grey (grey-black) solid at room temperature; it forms a brown solution in water and a purple vapour on warming.

Question 2

(a) Na^+ (sodium ion) cao **B1**

(a) Answer: Na^+ (sodium ion).

(b) $Na^+ + e^- \rightarrow Na$ (cao) **B1**

(b) Answer: $Na^+ + e^- \rightarrow Na$

Question 3

(a) cathode **B1**

(a) Answer: Cathode.

(b) anode **B1**

(b) Answer: Anode.

(c) positive ions (cations) move towards the cathode oe **M1**

(c) because the cathode is the negative electrode, and opposite charges attract oe **A1**

(c) Answer: Positive ions (cations) move towards the cathode, because the cathode is negatively charged and opposite charges attract.

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