

Chem!stry

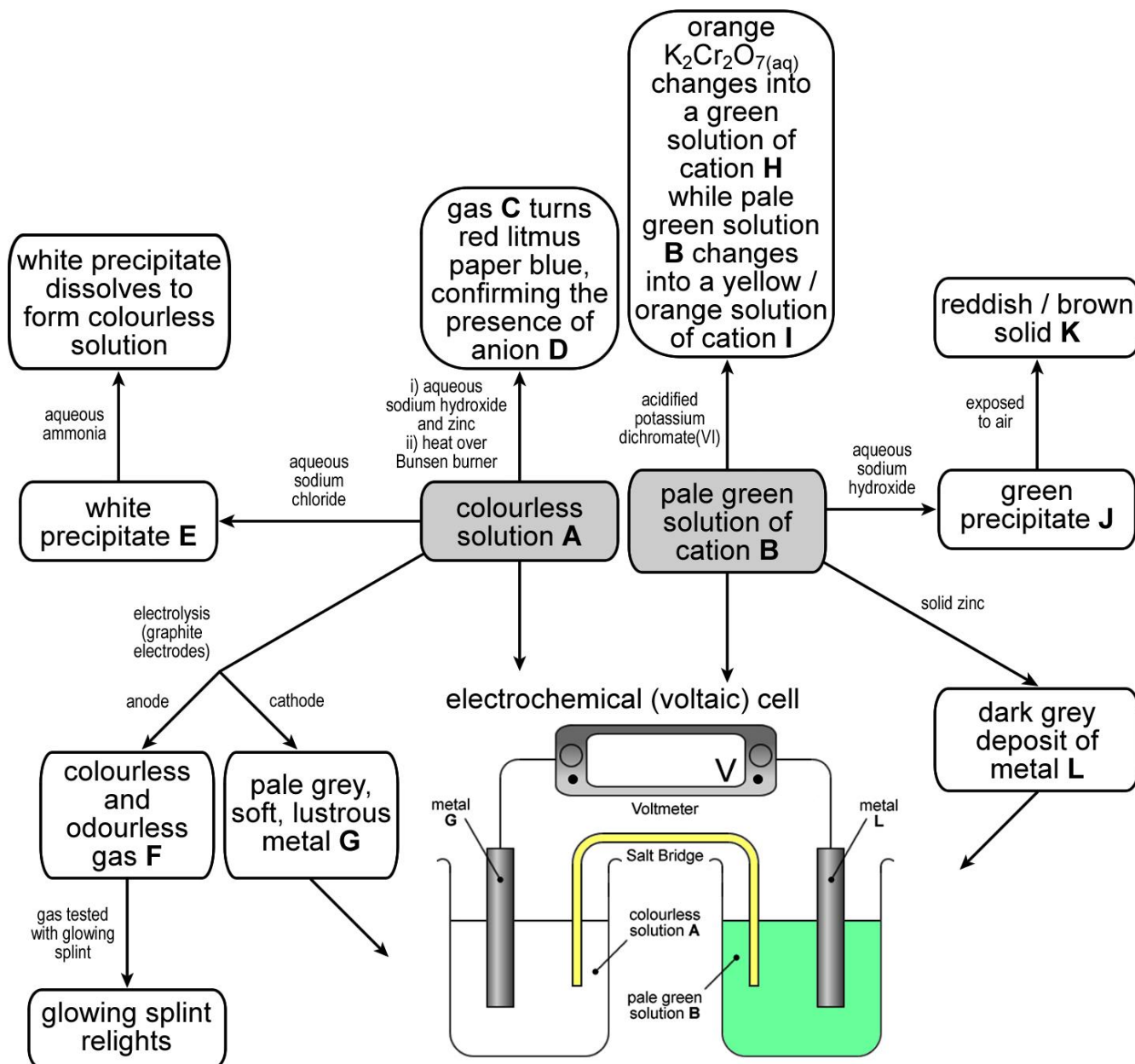
Name: ()

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Revision of Qualitative Analysis, Redox and Electrochemistry #3

Study the reaction sequence below, and then answer the questions on page 2.



Question 1:

Using chemical formulae, identify all of the chemicals **A** to **L**:

- | | | |
|-------------------|-------------------|-------------------|
| A is | B is | C is |
| D is | E is | F is |
| G is | H is | I is |
| J is | K is | L is |

Question 2:

Write the balanced chemical equation to describe the formation of white precipitate **E**:

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Question 3:

Write ionic half-equations to describe the electrolysis of colourless solution **A**:

Anode:

Cathode:

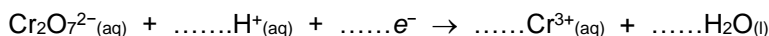
Question 4:

Write the ionic equation to describe the formation of green precipitate **J**:

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Question 5:

- a) Complete the ionic half-equation below to show the conversion of orange $\text{Cr}_2\text{O}_7^{2-}(\text{aq})$ into green $\text{Cr}^{3+}(\text{aq})$



- b) Is $\text{Cr}_2\text{O}_7^{2-}(\text{aq})$ an oxidising agent or a reducing agent? Justify your answer.

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Question 6:

- a) Write the ionic equation to describe the formation of dark grey metal **L**:

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- b) In the reaction that forms dark grey metal **L**:

i) What has been oxidised?

ii) What has been reduced?

Question 7:

In the electrochemical (voltaic) cell:

- a) Which metal is the negative anode?

- b) Write an ionic half-equation to describe the reaction taking place at the negative anode:

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- c) Which metal is the positive cathode?

- d) Write an ionic half-equation to describe the reaction taking place at the positive cathode:

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- e) In which direction will electrons flow through the external circuit?

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- f) What will happen to the voltage if metal **G** is replaced with copper and colourless solution **A** is replaced with an aqueous solution of copper(II) sulphate?

- Click on the QR code given below to view the answers to this assignment.



http://www.chemist.sg/electro_chem/electro_chem_and_qa/electro_chem_qa_3_ans.pdf