Electricity and Chemistry – 2019 Nov

1. 0620/11/O/N/19/No.10

During the electrolysis of concentrated hydrochloric acid, gases are produced at both electrodes.

Which statement describes the test result for the gas collected at the negative electrode?

A It bleaches damp litmus paper.

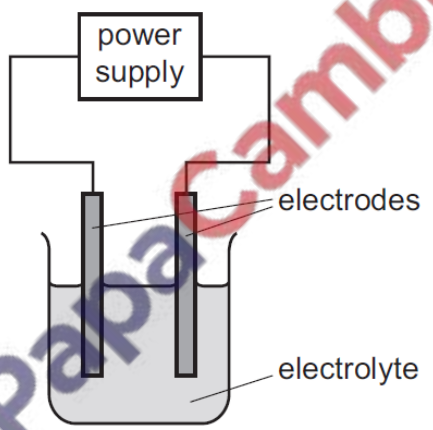
B It burns with a 'pop'.

C It relights a glowing splint.

D It turns limewater milky.

2. 0620/12/O/N/19/No.10

The apparatus used for electrolysis is shown.



Which statement is correct?

A Copper forms at the anode in some electrolysis reactions.

B Hydrogen forms at the cathode in some electrolysis reactions.

C Oxygen forms at the cathode in some electrolysis reactions.

D The negative electrode is called the anode.

3. 0620/13/O/N/19/No.10

Dilute sulfuric acid and lead(II) bromide are separately electrolysed.

Which statements are correct?

1 Colourless gases are evolved when dilute sulfuric acid is electrolysed.

2 Lead(II) bromide can be electrolysed when molten.

3 Lead is formed at the positive electrode when lead(II) bromide is electrolysed.

4 Sulfate ions are produced at the negative electrode when dilute sulfuric acid is electrolysed.

A 1 and 2 only **B** 1 and 3 only **C** 2 and 3 only **D** 3 and 4 only

4. 0620/21/O/N/19/No.11

Which rows correctly show cathode and anode products from the electrolysis of the named electrolyte?

	electrolyte	cathode product	anode product
1	copper(II) sulfate solution using copper electrodes	copper	oxygen
2	molten lead(II) bromide	lead	bromine
3	dilute sodium bromide solution	hydrogen	oxygen
4	copper(II) sulfate solution using carbon electrodes	hydrogen	oxygen

A 1 and 2 only **B** 1 and 4 only **C** 2 and 3 only **D** 3 and 4 only

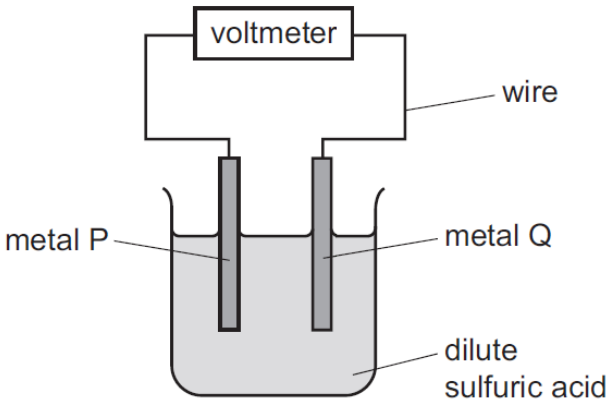
5. 0620/21,22,23/O/N/19/No.12

What are the ionic half-equations for the electrode reactions during the electrolysis of concentrated aqueous sodium chloride?

	anode	cathode
A	$Cl_2 + 2e^- \rightarrow 2Cl^-$	$H_2 \rightarrow 2H^+ + 2e^-$
B	$2Cl^- \rightarrow Cl_2 + 2e^-$	$2H^+ + 2e^- \rightarrow H_2$
C	$H_2 \rightarrow 2H^+ + 2e^-$	$Cl_2 + 2e^- \rightarrow 2Cl^-$
D	$2H^+ + 2e^- \rightarrow H_2$	$2Cl^- \rightarrow Cl_2 + 2e^-$

6. 0620/22/O/N/19/No.11

The diagram shows a simple cell.

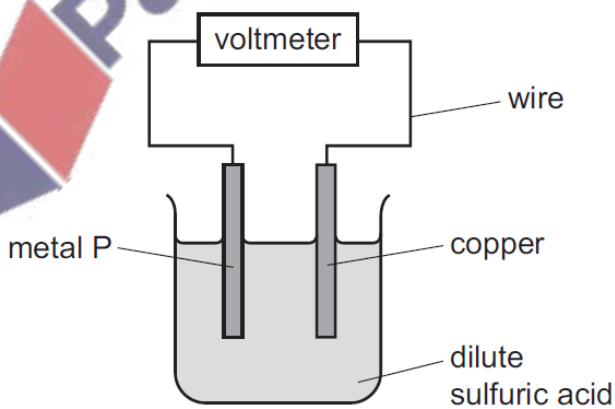


Which pair of metals produces the largest voltage?

	metal P	metal Q
A	magnesium	iron
B	magnesium	copper
C	zinc	iron
D	zinc	copper

7. 0620/23/O/N/19/No.11

The diagram shows a simple cell.



Which metal P produces the smallest voltage?

A calcium

B iron

C magnesium

D zinc