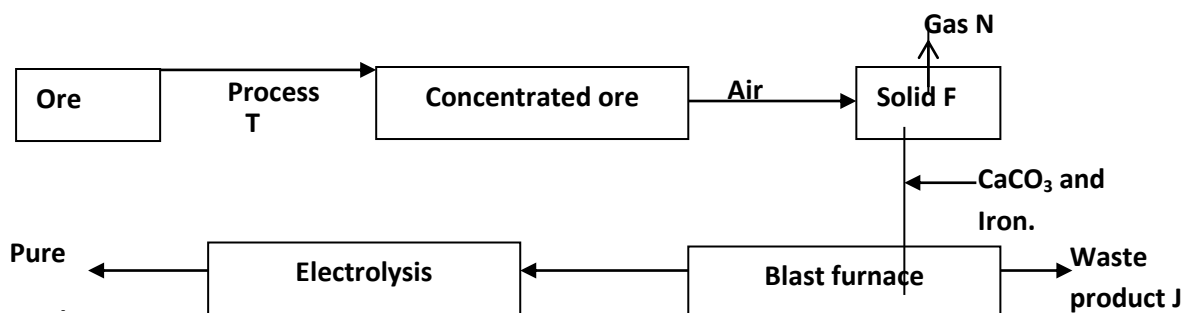

KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KAPSABET BOYS
CHEMISTRY
PAPER 2
TIME: 2 HOURS

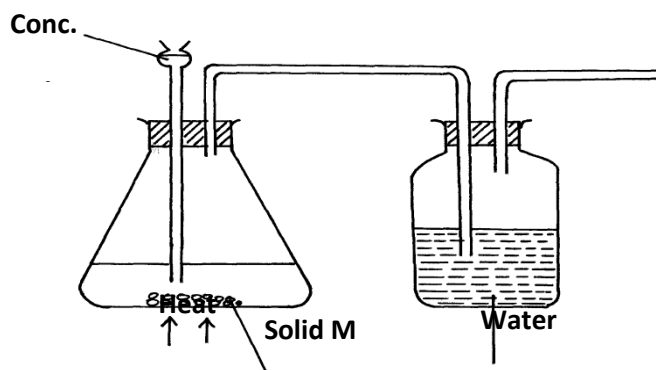
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**KAPSABET BOYS KCSE TRIAL AND
 AND PRACTICE EXAM 2016**
Paper 2

1. (a) What is an ore? (1mk)
 (b) Name any **two** ores of lead. (1mk)
 (c) The flow chart below summarizes the process of extraction of lead from a chief ore.

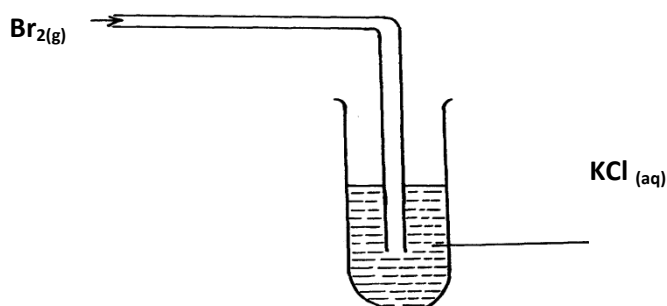


- (i) Identify process T (1mk)
 (ii) Give the name of:
 Gas N (2mks)
 Solid F (2mks)
 (iii) Give **two** functions of CaCO_3 in the extraction process. (2mks)
 (iv) Write an equation to show how waste product J is formed. (1mk)
 (v) Pure lead can be obtained by electrolysis. Identify the anode and cathode for the process. (1mk)
 (vi) State **two** uses of lead. (2mks)
2. The set up below was used to prepare chlorine gas.



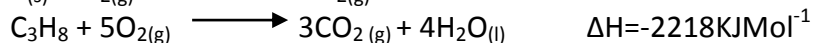
- (i) Identify solid M (1mk)

- (ii) What is the role of water in the experiment? (1mk)
- (iii) Complete the set up to show how dry chlorine gas can be collected (2mks)
- (iv) Write a chemical equation to show how chlorine gas is formed. (1mk)
- (v) Chlorine reacts with cold dilute sodium hydroxide to form a bleaching agent. Name the bleaching agent. (1mk)
- (vi) Give an equation to show how chlorine forms bleaching powder. (1mk)
- (vii) Other than bleaching, state two other uses of chlorine gas. (2mks)
- (viii) Study the diagram below.



State and explain the observation made after sometime. (2mks)

3. (a) Define standard heat of combustion of a substance. (1mk)
- (b) Study the heats of combustion shown below.



- (i) Draw an energy cycle diagram linking heat of formation of propane with its heat of combustion and the heat of combustion of the constituent elements. (2mks)
- (ii) Use the information above to calculate the heat of formation of propane (2mks)

(c) A given amount of propane was used to heat one litre of water. The temperature of the water rose from 25°C to 50.5°C. (S.H.C of water = 4.2Jgk⁻¹)

- (i) Calculate the heat change for the reaction. (2mks)
- (ii) Find the mass of propane burnt (C=12, H=1) (2mks)
- (d) Calculate the calorific value of propane. (2mks)
- (e) Apart from heating value, state two other factors to consider when choosing a fuel. (2mks)

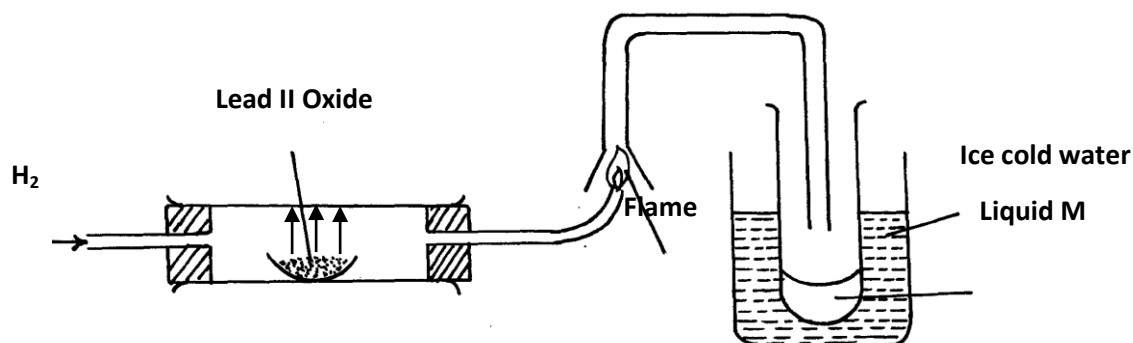
4. Study the periodic grid below and answer the questions which follow. The letters do not represent actual symbols of the elements.

P				F				
S	T		C	E		U	X	Z
		N					Y	

- (i) To which category of elements does element N belong? (1mk)
- (ii) Compare the atomic radius of element U and X. Explain. (2mks)

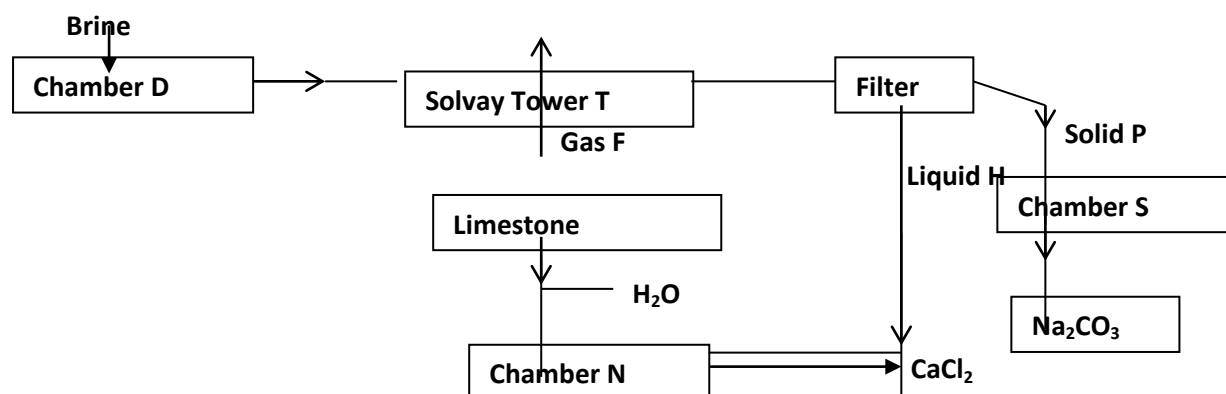
- (iii) An ion A^{3-} has a configuration of 2.8. Place element A on the grid above. (1mk)
- (iv) Which of the group 1 elements will require the greatest amount of energy to remove the outermost electron. Explain. (2mks)
- (v) Why is element Z used in light bulbs? (1mk)
- (vi) Write the formula of the phosphate of element T. (1mk)
- (vii) State the type of structure found in the oxide of element F. (1mk)
- (ix) What is atomicity? (1mk)

5. Study the diagram below and answer the questions which follow.



- (i) State **two** observations made when hydrogen gas pass over hot lead II oxide. (2mks)
- (ii) Write the equation for the reaction which occurs in the combustion tube. (1mk)
- (iii) What property of hydrogen is shown in the experiment above (1mk)
- (iv) Identify liquid M. (1mk)
- (v) What type of reaction occurs when hydrogen gas reacts with butene? (1mk)
- (vi) State the condition required for the reaction (v) above (1mk)
- (vii) Apart from hydrogen peroxide, state **two** other reagents that can be used to prepare oxygen gas. (1mk)
- (viii) Write an equation to show how hydrogen gas is formed from the reagents chosen in above. (1mk) (vii)

6. Study the flow chart below and answer the questions which follow.



- (a) Identify (3mks)
- (i) Gas F
- (ii) Liquid H

- (iii) Solid
 (b) State **one** use of calcium chloride. (1mk)
 (c) Give **two** reasons why such a plant should be cited near a river (2mks)
 (d) Write equations for the reactions occurring in chamber: (2mks)
 (i) **N**
 (ii) **S**

(e) Using an ionic equation, explain how sodium carbonate is used to soften hard water. (1mk)

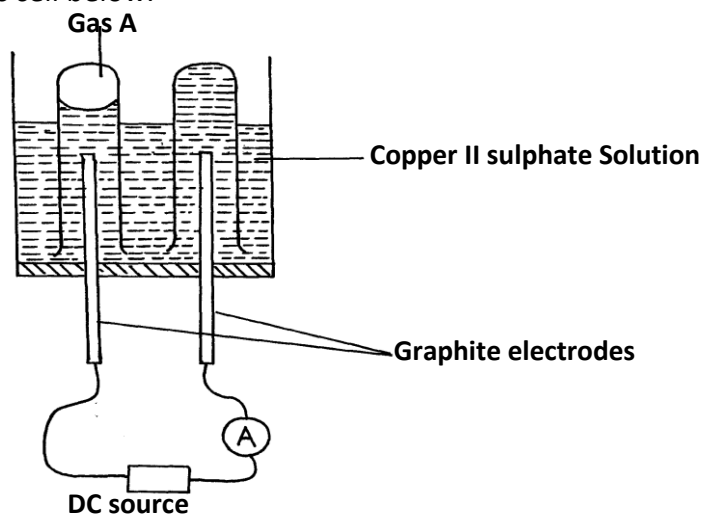
- (f) Explain how ammoniacal brine is formed. (1mk)
 (g) State **one** use of sodium hydrogen carbonate. (1mk)

7. (a) Study the reduction potentials below.

Half cell	E^θ (volts)
$A^{2+}(aq) + 2e^- \rightleftharpoons$	+0.34
$B^+(aq) + e^- \rightleftharpoons$	-2.92
$\frac{1}{2}C_2(g) + e^- \rightleftharpoons$	+2.87

- (i) Identify the weakest oxidizing agent. (1mk)
 (ii) Calculate the e.m.f of the cell that would produce the highest output of voltage. (2mks)
 (iii) Write the cell diagram for the cell formed above. (1mk)

(b) Study the electrolytic cell below.



- (i) Identify the anode and cathode on the diagram. (1mk)
 (ii) Write an equation to show how gas A is formed. (1mk)
 (iii) State **two** changes that occur in the electrolyte after the experiment. (2mks)
 (iv) What is electroplating? (1mk)
 (v) Write the equation at the anode if copper electrodes were used. (1mk)
 (vi) In electrolysis of dilute magnesium sulphate, using inert electrodes, a current of 2A was passed for 1½ hours. Calculate the volume of the gas produced at the anode at s.t.p. ($1F=96500$, M.G.V=22.4 L) (3mks)