

ALLIANCE HIGH SCHOOL CHEMISTRY EXAMINATION FORM 2 END OF TERM ONE 2016 TIME: 2HOURS

NAME.....

CLASS

ADM. NO.....

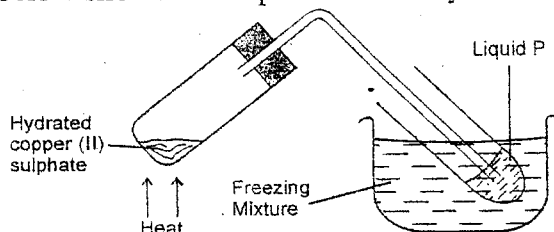
ANSWER ALL QUESTIONS IN THE SPACES PROVIDED

1. The grid below shows part of the periodic table. Study it and answer the questions that follow.

										Q
					S			R	K	
A	J				Y	U		P	L	
W									M	B

- a) Give the name of the elements represented by the shaded region. (1 mark)
.....
- b) Identify an element which form ion with +2 charge. (1 mark)
.....
- c) Which non-metal is most reactive ? (1 mark)
- d) Element V is in the second period and group V of the periodic table. Place it on the above grid of the periodic table. (1 mark)
- e) State and explain how the atomic radius of U and J compare. (2 marks)
.....
.....
- f) Write a chemical equation for the reaction between the oxide of A and water. (1 mark)
.....
- g) Explain how the electrical conductivity of A and Y compare. (2 marks)
.....
.....

2. a) The diagram below shows a set up used to het hydrated copper (II) sulphate crystals.



i) State the colour change that occurred in the copper (II) sulphate crystals when heated. (1 mark)

.....
.....

ii) Identify liquid P (1 mark)

iii) Describe the chemical test that could be used to confirm liquid P. (2 marks)

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.....

b) Liquid P was heated for 8 minutes in a beaker. The results are given in the table below.

Time (minutes)	0	1	2	3	4	5	6	7	8
Temperature (°C)	-2	0	0	23.0	46.5	70	95	95	96

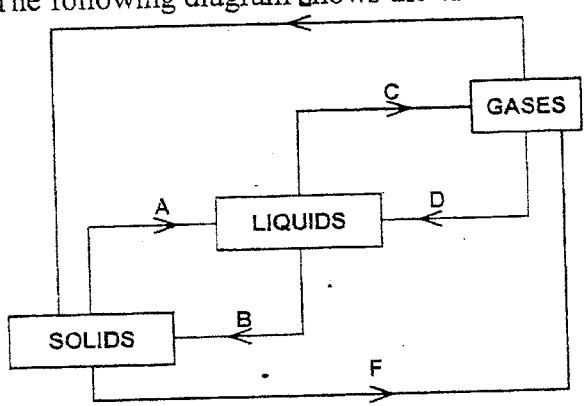
i) On the grid provided, plot a graph of temperature of liquid P (y-axis) against time (x-axis) (3 marks)

ii) On the graph, show the freezing point and boiling point of P. (2 marks)

iii) What is the effect of adding sodium chloride to the boiling point of liquid P? Explain. (1 mark)

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3. The following diagram shows the effects of heat on the physical states of substances.



(a) Identify the processes represented by the letters A, B, C, D, E and F (3 marks)

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 (b) Name two substances that undergo the process labelled E and F. (2 marks)

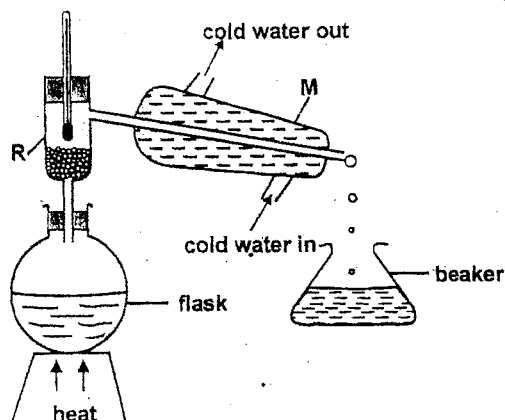
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 (c) Name a method that can be used to extract the following:-

(i) Common salt from a salt solution. (1 mark)

.....
 (ii) Paraffin from crude oil. (1 mark)

.....
 (d) A student separated liquid P (B.P 78°C) and liquid Q (B.P 100°C) using the apparatus shown below.



(i) Name the apparatus labelled

(a) M (1 mark)

(b) R (1 mark)

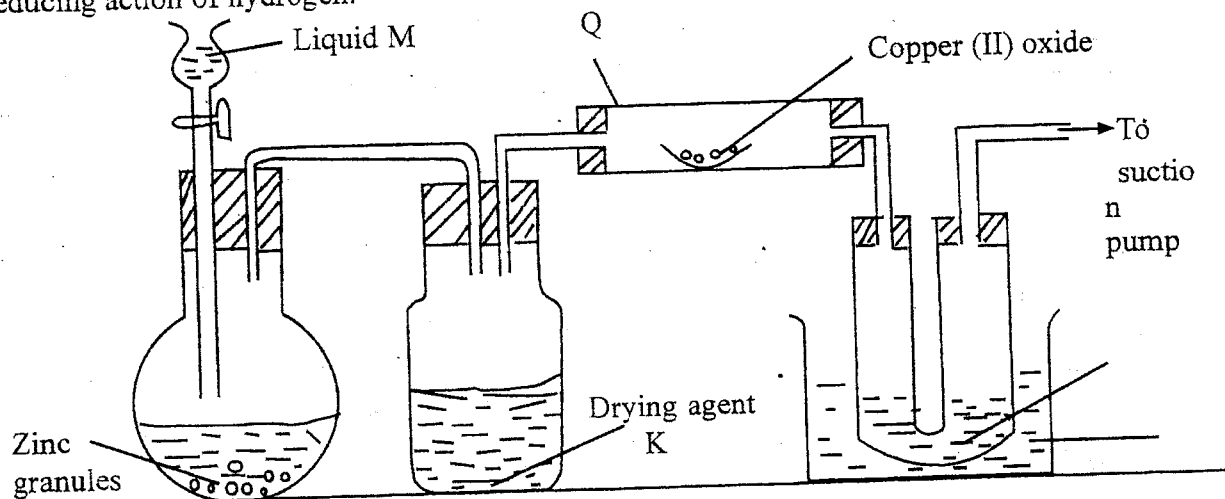
(ii) State one function of the glass bead in apparatus labelled R (1 mark)

.....
 (iii) What is the reading on the thermometer when the first jar drops of the distillate appeared in the beaker. (1 mark)

(iv) Which of the liquids remains in the flask. (1 mark)

.....

4. Below is a diagram shown how hydrogen can be prepared in the laboratory and the study of the reducing action of hydrogen.



a) Define the term reduction as per the diagram above. (1mark)

.....
.....

b) Identify apparatus Q (1mark)

c) Identify two mistakes in the set up. (2marks)

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d) Suggest a suitable drying agent K. (1mark)

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e) What is liquid M. (1mark)

..... (2marks)

f) Explain the chemical reaction taking place in apparatus Q.

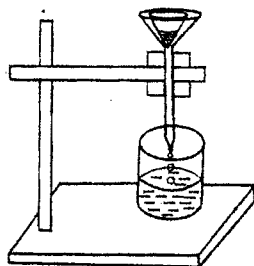
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g) (i) Name liquid S (1mark)

ii) Give two chemical tests for liquid S (2marks)

b) State two uses of hydrogen gas. (1mark)

5. (a) What is the name given to the separation technique shown in the diagram. (1 mark)



(b) A mixture of salt and sand can be separated by use of the set-up above.

I. On the diagram identify the filtrate and the residue. (1 mark)

II. Name a physical property used to ensure separation takes place. (1 mark)

(c) Name two other methods of separation that can be carried out further to obtain regular shaped forms of solid in the beaker. (1 mark)

(d) Two immiscible liquids P and U were found to have densities 1.65g/cm^3 and 0.52g/cm^3 respectively. Using the most suitable set of apparatus, describe how one can separate them. (3 marks)

6. a) An atom B (not actual symbol) can be represented as

(i) What does 80 stand for?



(1mark)

c) Study the information in the table below and answer the questions that follow. The letters do not represent actual symbols.

Element of stable ion	Electron arrangement radius (nm)	Atomic radius (nm)	Ionic
A	2.8.8	0.197	0.099
B	2.8.8	0.99	0.181
C	2.8	0.16	0.065
D	2.8	0.186	0.095
E	2	0.152	0.068
F	2.8	0.072	0.136

i) Identify the elements that belong to the third period of the periodic table. (1 mark)

ii) Arrange the elements you have identified in (i) above as they follow each other in the third period. (1 mark)

iii) Is element F a metal or a non-metal. Explain your answer. (2 marks)

7. A student tested the pH of five solutions using universal indicator and obtained the following results.

Solution	Colour	pH
A	Blue	10
B	violet	14

C	Red	1
D	Green	7
E	Yellow	5

- (a) Which of the solution is likely to be
- (i) Lactic acid. (½ mark)
- (ii) Sodium chloride (½ mark)

(b) Magnesium hydroxide is used as medication to relieve stomach acidity.

(i) Write a chemical equation for the reaction that occurs in the stomach when one takes in the medicine. (1 mark)

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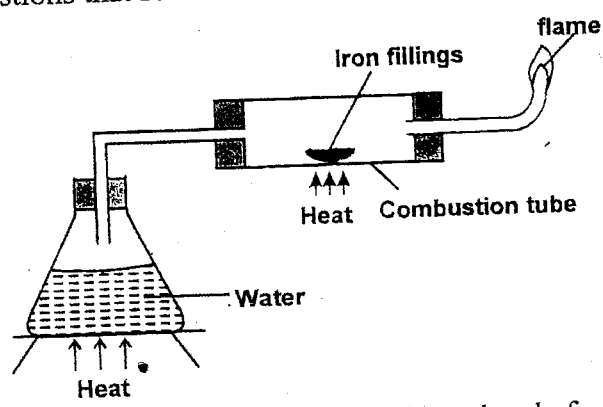
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(ii) Explain why sodium hydroxide pellets cannot be used for the same purpose in b(i) above. (1 mark)

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.....

(c) Steam was passed over iron fillings as shown in the diagram below. Study it and answer the questions that follow.



(a) State one precaution which should be taken before lighting the gas at the jet. (1 mark)

.....

(b) Write a chemical equation for the reaction taking place.

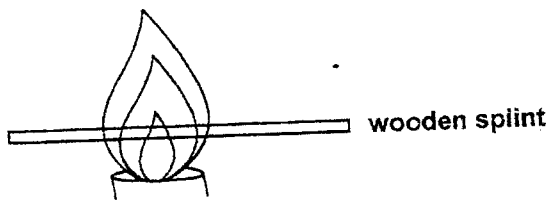
(i) In the combustion tube. (1 mark)

.....

(ii) At the jet (1 mark)

.....

8. (I) Study the diagram below then use it to answer the questions that follow.



- a) Draw the wooden splint at the end of the experiment. If it was slipped then removed. (1 mark)

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- b) Explain the appearance of the wooden splint in (a) above. (2 marks)

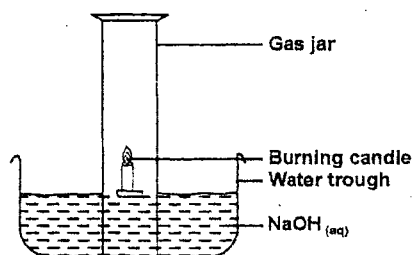
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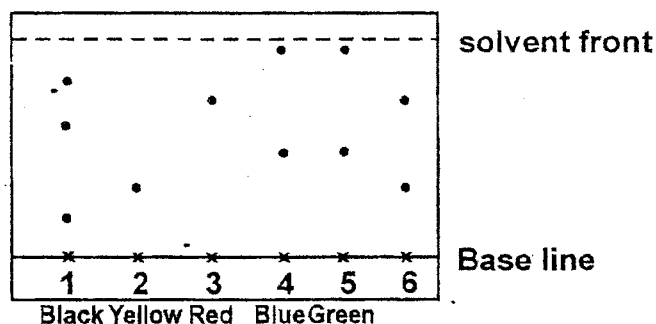
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- II) Use the diagram below to answer the questions that follow.



- a) Why is sodium hydroxide solution preferred to water in the above set-up. (1 mark)
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-
- b) What modification should be made to the above set-up if percentage of oxygen used in air should be determined (1 mark)
-
-
- c) Name the main component of air not used in the above set-up. (1 mark)
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- (III) A piece of chromatography paper was spotted with coloured inks obtained from pens labelled 1 to 6. The diagram below shows the spots after the chromatogram was developed.



a) Which two pens contained the same pigment? (1 mark)

b) Which pens contained only one pigment? (1 mark)

c) According to the chromatogram, which pigments are present in the ink of pen number 6. (1 mark)

.....
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c) A positively charged rod is gradually brought close to the cap of a negatively charged electroscope. It is observed that the leaf collapses initially and then diverges. Explain the observation (3mks)

22.a) Given a bar magnet, an iron bar and a string, describe a simple experiment to distinguish between the magnet and the iron bar (3mks)

b) the figure below shows the poles of two magnets close together.



Sketch the magnetic field pattern in the space between the poles (2mks)

c) Distinguish between hard and soft magnetic materials (2mks)

e) Figure below shows a bar of soft iron placed near a magnet.



On the same diagram sketch the magnetic field pattern and explain this observation (3mks)

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