AL AIN JUNIORS SCHOOL
BRITISH SYSTEM

PARTICULATE NATURE OF MATTER

Subject	CHEMISTRY					Grade & Section	9
Date	Sept 2019	Roll No.		Time	20 Mins	T. Marks	13
Name							

Teacher / Head's Signature: **Parent's Signature:**

1.

When the colourless gases hydrogen bromide and ethylamine come into contact, a white solid is formed.

$$CH_3CH_2NH_2(g) + HBr(g) \rightarrow \underset{\text{white solid}}{CH_3CH_2NH_3Br(s)}$$

The following apparatus can be used to compare the rates of diffusion of the two gases ethylamine and hydrogen bromide.

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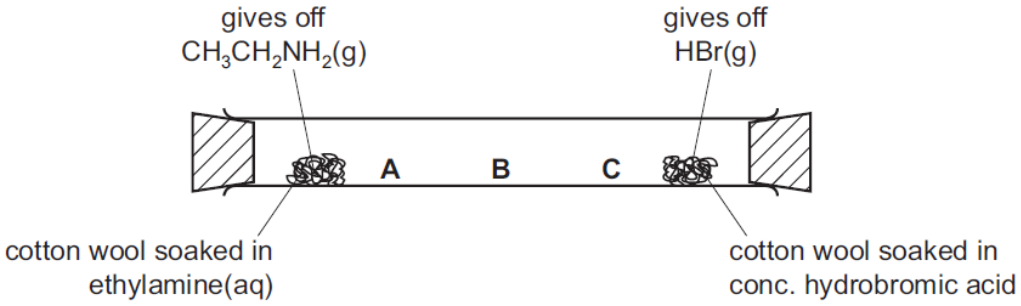


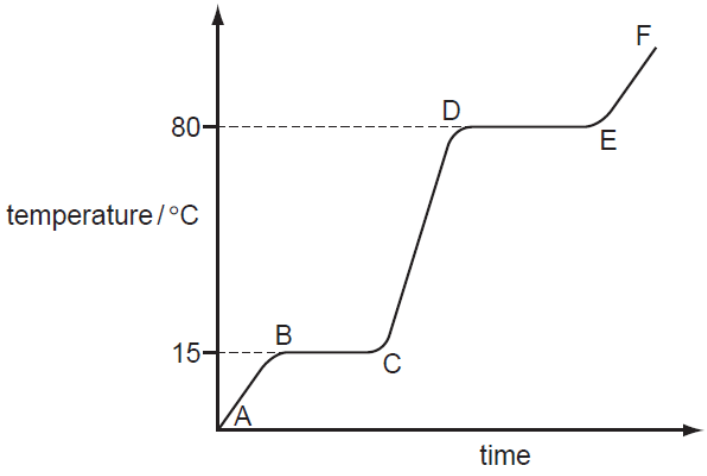
Predict at which position, **A**, **B** or **C**, the white solid will form. Explain your choice.

.....

.....

..... [3]

2 The diagram shows a heating curve for a sample of compound X.



(a) Is X a solid, a liquid or a gas at room temperature, 20 °C?

..... [1]

(b) Write an equation for the equilibrium which exists in region BC.

..... [2]

(c) Name the change of state which occurs in region DE.

..... [1]

(d) Explain how the curve shows that a pure sample of compound X was used.

.....

..... [2]

3. Some students are asked to describe differences between gases and liquids.

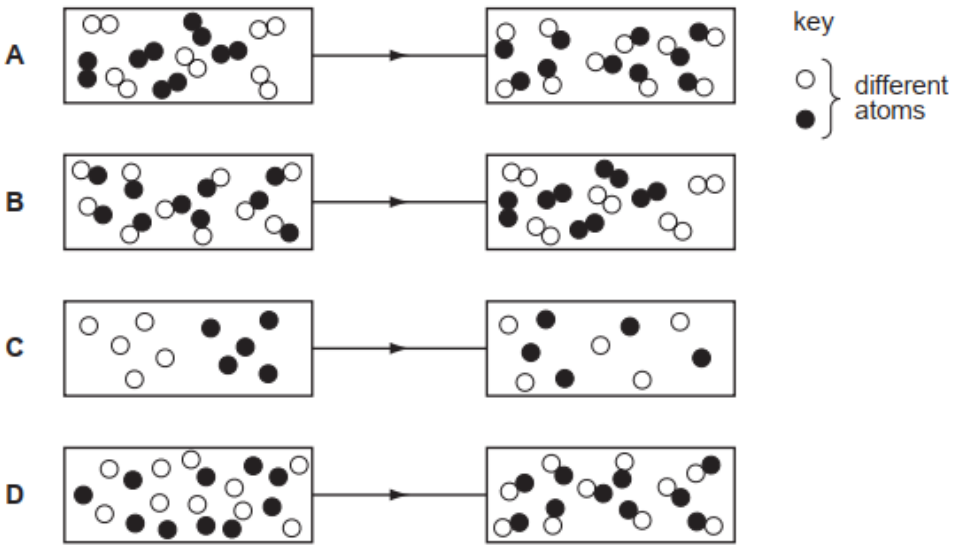
Three of their suggestions are:

1	gas molecules are further apart;
2	gas molecules are smaller;
3	liquid molecules vibrate around fixed positions.

Which suggestions are correct?

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

4. Which diagram shows the process of diffusion?



5. What are the factors that affect the rate of diffusion of a gas? [2]

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THE PERIODIC TABLE

Subject	CHEMISTRY					Grade & Section	9ABDE
Date	Sept 2019	Roll No.		Time	20 Mins	T. Marks	19
Name							

Teacher / Head's Signature: **Parent's Signature:**

1. Use your copy of the Periodic Table to answer these questions.

(a) Choose an element from the Periodic Table to match each description.
You may give either the name or the symbol.

(i) It is the most reactive metal. ..... [1]

(ii) It is the only non-metal which is a liquid at r.t.p.. ..... [1]

(iii) An isotope of this element is used as a fuel in nuclear reactors. ..... [1]

(iv) This Group VII element is a solid at r.t.p.. ..... [1]

(v) This element is in Group V and Period 4. ..... [1]

(vi) This unreactive gas is used to fill lamps. ..... [1]

(b) Predict the formula of each of the following compounds.

(i) germanium oxide .....

(ii) tellurium bromide ..... [2]

(c) Give the formula of each of the following ions.

(i) strontium .....

(ii) fluoride ..... [2]

2. The diagram shows one period of the Periodic Table.

Li	Be	B	C	N	O	F	Ne

Which two elements form acidic oxides?

A carbon and lithium

B carbon and neon

C carbon and nitrogen

D nitrogen and neon

3. Which property of elements increases across a period of the Periodic Table?

A metallic character

B number of electron shells

C number of outer shell electrons

D tendency to form positive ions

4. In the Periodic Table, the elements are arranged in columns called Groups and in rows called Periods.

(a) Complete the table for some of the elements in Period 3.

group number	I	II	III	IV	V	VI	VII
symbol	Na	Mg	A*l*	Si	P	S	C*l*
number of valency electrons							
valency							

[2]

(ii) What is the relationship between the group number and the number of valency electrons?

.....

..... [1]

(iii) Explain the relationship between the number of valency electrons and the valency

for the elements Na to A*l*,

.....

.....

.....

for the elements P to C*l*.

.....

.....

.....

[4]

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Worksheet – Periodic Table

Subject	**CHEMISTRY**					**Grade & Section**	**9 ABDE**
Date		**Roll No.**		**Time**	**20 Min**	**T. Marks**	
Name							

Teacher / Head's Signature: **Parent's Signature:**

1. Vanadium is a transition element. It has more than one oxidation state.
The element and its compounds are often used as catalysts.

(a) Complete the electron distribution of vanadium by inserting one number.

2 + 8 + ... + 2

[1]

(b) Predict **three** physical properties of vanadium which are typical of transition elements.

1. .....

2. .....

3. ..... [2]

2. Predict **two** differences in physical properties and **two** differences in chemical properties between rubidium and the transition metal niobium.

physical .....

.....

.....

chemical .....

.....

..... [4]

3. An element has the following properties.

- It forms coloured compounds.
- It acts as a catalyst.
- It melts at 1539 °C.

In which part of the Periodic Table is the element found?

A Group I

B Group IV

C Group VII

D transition elements

4. The halogens are a group of non-metals in Group VII of the Periodic Table.

(a) The reactivity of the halogens decreases down the group.

Describe an experiment which shows that chlorine is more reactive than iodine. Include an equation in your answer.

.....

.....

.....

5. The first three elements in Period 6 of the Periodic Table of the Elements are caesium, barium and lanthanum.

(a) How many **more** protons, electrons and neutrons are there in one atom of lanthanum than in one atom of caesium. Use your copy of the Periodic Table of the Elements to help you.

number of protons .....

number of electrons .....

number of neutrons ..... [3]

6. The following statements are about elements in the Periodic Table.

1 Their atoms have a full outer shell of electrons.

2 They form basic oxides.

3 They are found in Group 0.

4 They are present in small quantities in the air.

Which statements are correct for the noble gases?

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

7. Some properties of the Group I elements are given in the table.

element	melting point /°C	boiling point /°C	density in g/cm^3
lithium	181	1342	0.53
sodium	98	883	0.97
potassium	63		0.86
rubidium	39	686	1.53
caesium	29	669	1.88

(a) (i) Predict the boiling point of potassium.

..... [1]

(ii) Which Group I elements are liquids at 50 °C?

..... [2]

(iii) How, in general, does the density of the Group I elements change down the group?

..... [1]