Name :……..……stream:……

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545/1
Chemistry
Paper 1
(theory)
August, 2023
2 hours

CHEMISTRY DEPARTMENT

Uganda certificate of lower secondary education

CHEMISTRY

Paper 1 (theory)

2 HOURS

INSTRUCTIONS

This paper is made up of only six questions, answer all the questions in this paper.

Each question takes 12 marks.

Answers to these questions must be answered in the spaces provided.

All working must be clearly shown and must be in black or blue ink.

Any work done in pencil will not be marked except drawings.

For examiners' Use Only						
1	*2*	*3*	*4*	*5*	*6*	*Total*

Attempt all questions in this section.

1. ***The table below shows the melting point, boiling points and densities of substances A, B, C and D.***

Substance	***Melting point (°C)***	***Boiling point (°C)***	***Density (gm^{-3})***
A	***1536***	***2861***	***7.874***
B	***-219.62***	***-188.14***	***1.696***
C	***115.21***	***444.6***	***2***
D	***-38.9***	***356.7***	***13.5***

a) If the standard room temperature is 25°C,
State with reasons which substance(s) is/are:

i) Solid(s) at room temperature. (01 mark)

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ii) Gas(es) at room temperature. (01 mark)

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iii) Liquid(s) at room temperature. (01 mark)

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b) Comment on the relationship between melting point and density of the substances. (02 marks)

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c) Using the densities of the substances in the table, identify which substance(s) is/are:
Metals

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……...

Nonmetals. *(04 marks)*

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……...

d) If the substances are separately added to water with density 1gcm^{-3} and mercury with density 13.1gcm^{-3}.
State whether the substance will either sink or float. *(04 marks)*

Substance	*Mercury*	*Water*
A		
B		
C		
D		

2. Using the kinetic theory of matter, explain the following observations.

a) An inflated balloon eventually shrinks when left on a cemented floor for 3 days.(03 marks)

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b) You can easily squeeze a plastic gas syringe that is completely filled with air, than squeezing the one which is filled with water. *(03 marks)*

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c) When you apply a sanitizer on your hand, you feel cold as the sanitizer evaporates.(03 marks)

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d) The air pressure in the tubes within a car tyre increases after a very long journey drive on a hotter day. (03 marks)

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3. Concrete is one of the brittle materials that break easily. During the construction of the kitchen floor at SENK, workers were advised to pour cold water on the floor for 10 days after screeding it.

a) Name any four materials that can be used for making concrete. (02 marks)

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b) Briefly describe how concrete is made. (04 marks)

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c) Explain why the workers were advised to pour cold water on the floor for 10 days after screeding it. (02 marks)

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d) One of the materials in concrete is made from limestone,

i) Write the chemical name and formular of limestone. (02 marks)

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ii) State two properties of concrete. (02 marks)

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4. Elements can be classified as metals and nonmetals with different physical properties: the properties may include strong and hard, sonorous, brittle, malleable, having a shiny lustre and thermal conductivity.

a) With examples, explain what is meant by the following terms. (02 marks@)

i) Sonorous

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ii) Malleable

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iii) Ductile

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iv) Lustre

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v) Brittle

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vi) Thermal conductivity

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5. In a chemistry practical, S.1 students at SENK heated separately solid ammonium chloride and ammonium carbonate in dry boiling tubes to find out the type of change undergone by each of the two substances.

a) State the type of change undergone by each of the substances

i) Ammonium chloride. (01 mark)

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ii) Ammonium carbonate. (01 mark)

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b) State any three properties of the type of change undergone by heating ammonium carbonate. (03 marks)

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c) State any three applications of the type of change undergone in a(ii) above.(03 marks)

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d) State what is observed in the test tube containing solid ammonium chloride.(01 mark)

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e) Name any three other substances that can undergo the same change as ammonium chloride.

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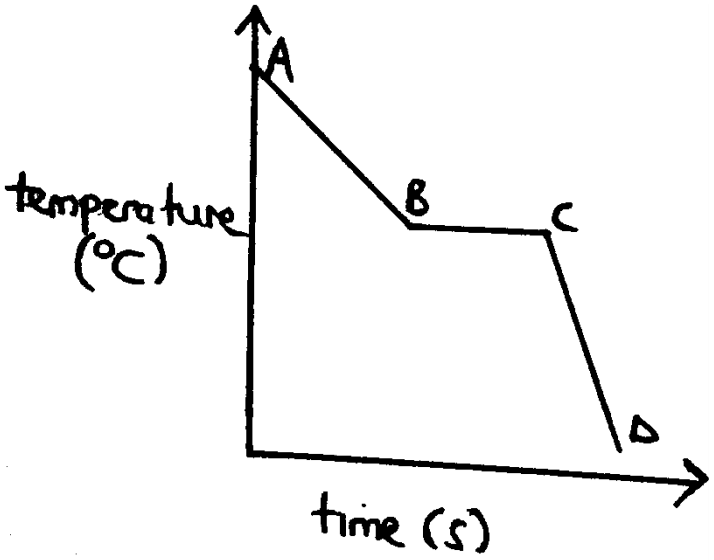
6. S.1 students at SENK left pure liquid naphthalene to cool to room temperature. Below is a temperature- time cooling curve obtained.



a) Name the state of naphthalene at;

i) AB *(01 mark)*

……...

……...

ii) CD *(01 mark)*

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……...

b) Briefly state what happens in regions;

i) AB *(02 marks)*

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ii) BC *(02 marks)*

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iii) CD *(02 marks)*

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c) Draw the particles of naphthalene along region;

i) BC

ii) CD

d) If the boiling and melting points of naphthalene are 218°C and 80.1°C respectively, With a reason for your answer, identify the state of naphthalene at room temperature.

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Without chemistry, science is a philosophy.

END