**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ADM NO: \_\_\_\_\_\_\_\_\_\_\_\_CLASS: \_\_\_\_\_\_\_\_\_\_**

**DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SIGN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

MARKS HERE

**CHEMISTRY**

**FORM 2**

**TERM 3, 2023**

**INSTRUCTIONS: Answer All Questions TIME: 1Hr 30 Mins**

1. Both graphite and diamond are allotropes of element Carbon. Graphite conducts electricity whereas diamond does not. Explain. (2mks)

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1. Starting with Lead (II) carbonate explain how you would prepare a pure sample of

Lead (II) sulphate. (3mks)

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1. Explain why magnesium is a better conductor of electricity than sodium. (2mks)

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1. Explain why luminous flame is capable of giving out light and soot. (2mks).

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1. In an experiment, ammonium chloride was heated in test-tube. A moist red litmus paper placed at the mouth of test first changed blue then red. Explain these observations. (3mks)

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1. (i) Diamond and silicon (IV) Oxide have a certain similarity in terms of structure and bonding. State it (2mk)

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1. (ii) State **one** use of diamond. (1mk)

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1. When Carbon (IV) oxide is passed through lime water, a white precipitate is formed but when excess Carbon (IV) Oxide is passed, the white precipitate disappears;
2. Explain why the white precipitate disappears. (2mks)

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1. Give an equation for the reaction that takes place in (a) above. (2mks)

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1. Water has a boiling point of 1000C while hydrogen chloride has a boiling point of -115oC. Explain (2mks)

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1. Explain why the boiling point of ethanol is higher than that of hexane. (3mks)

(Relative molecular mass of ethanol is 46 while that of hexane is 86).

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1. Sodium and Magnesium belong to the same period on the periodic table and both are metals.Explain why magnesium is a better conductor of electricity than sodium. (2mks)

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1. Sodium Carbonate Decahydrate crystals were left exposed on a watch glass for two days.

a) State the observations made on the crystals after two days. (1mk)

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b) Name the property of salts investigated in the above experiment (1mk)

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1. Using dots and crosses to represent electrons, draw the structures of the following:

Phosphorous chloride (PCl3). (2mks)

1. a) What is an isotope? (1mk)

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1. Carbon and Silicon are in the same group of the periodic table. Silicon (IV) Oxide melts at 2440oC while solid Carbon (IV) Oxide sublimes at -70oC. In terms of structure and bonding, explain this difference. (3mks)

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1. Carbon and silicon belong to the same group of the periodic table, yet Carbon (IV) oxide is a gas while silicon (IV) oxide is a solid with a high melting point. Explain this difference (3mks)

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18. When the oxide of element H was heated with powdered Carbon, the mixture glowed and Carbon (IV) oxide was formed. When the experiment was repeated using the oxide of element J, there was no apparent reaction

(a) Suggest one method that can be used to extract element J from its oxide (1mk)

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(b) Arrange the elements H, J and Carbon in order of their decreasing reactivity (3mks)

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b) An element **Q** consists of 3 isotopes of mass 28, 29, 30 and percentage abundance of 92.2%, 4.7%, and 3.1% (3mks) …………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

19. Identify the particles that facilitate the electric conductivity of the following substances (3mks)

(i) Sodium metal

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(ii) Sodium Chloride solution

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(iii) Molten Lead Bromide

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20. Element **A** has atomic mass 23 and element **B** has atomic mass 7 and also have 12neutorns and 4 neutrons respectively.

(a) Write the electronic arrangement of **A** and **B** (1mk) ……………………………………………………………………………………………………………………………………………………………………………………………………………………………………

(b) Which element has higher ionization energy? Explain (2mks) …………………………………………………………………………………………………………………