**ANESTAR SCHOOLS**

**FORM 2 CHEMISTRY**

**OPENER EXAM**

**TIME: 1HR 30MINS**

NAME……………………………………………………………………………...ADM………………………………CLASS…………...

1. Iron (III) oxide was found to be contaminated with copper (II) sulphate. Describe how a pure sample of iron (III) oxide can be obtained. (3mks)

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1. The electronic structures of five atoms, A, B, C, D and E, are shown.



Answer the following questions about these structures. Each structure may be used

once, more than once or not at all. State which structure, A, B, C, D or E, represents:

 (5mks)

1. An atom of a metallic element. ……………………………………………………
2. An atom with a proton number of 13. ……………………………………………
3. An atom of phosphorus. ………………………………………………………
4. An atom with only two shells of electrons. ……………………………………
5. An atom which forms a stable ion with a single negative charge. …………….
6. Element **E** has an atomic number of 5. In a sample of **E** there are two isotopes. One isotope has a mass number of 10 and the other isotope has a mass number of 11.
7. Explain, in terms of subatomic particles, what is meant by the term isotopes. (2mks)

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1. Element **X** has an atomic number of 18. (1mks)

State the electronic configuration of an atom of element **X** …………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. In an experiment, a piece of magnesium ribbon was cleaned with steel wool. 2.4g of

the clean magnesium ribbon was placed in a crucible and completely burnt in oxygen.

After cooling the product weighed 4.0g

a) Explain why it is necessary to clean magnesium ribbon (2mks)

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b) What observation was made in the crucible after burning magnesium ribbon?

 (1mk)

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c) Why was there an increase in mass? (1mk)

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d) Write an equation for the major chemical reaction which took place in the crucible

 (2mks)

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1. The figure below shows an atom with two energy levels (shells).



a. Complete Figure 1 to show the electronic structure of a boron atom. (1mk)

c. What does the central part labelled Z represent in the figure above?

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d. Name the sub-atomic particles in part Z of a boron atom and give the relative charges of these sub-atomic particles (3mks)

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6. Complete the sentences.

a. The atomic number of an atom is the number of (1mk)

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b. The mass number of an atom is the number of (1mk)

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c. Explain why an atom has no overall charge. Use the relative electrical charges of subatomic particles in your explanation. (2mks)

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d. Explain why fluorine and chlorine are in the same group of the periodic table.

Give the electronic structures of fluorine and chlorine in your explanation. (2mks)

1. The diagram below shows students set-up for the preparation and collection of oxygen gas

X

 

 SODIUM PEROXIDE

(a) Name substance **X** used (1mk)

………………………………………………………………………………………………

(b) Write an equation to show the reaction of sodium peroxide with the substance named in **1a (2mks)**

**……………………………………………………………………………………………….**

1. A) State what is observed when solid iodine is heated (2mks)

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b) Name the process that iodine undergoes when heated (1mk)

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c) State two other substances that undergo the same process as b) above (2mks)

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1. A student set the experiment below to investigate the percentage of oxygen in air



1. Use the findings above to calculate the percentage of air used in combustion (3mks)

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1. If the percentage of oxygen in air is theoretically 20.9%, give two reasons why the value in a) above is different. (2mks)

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1. Why is concentrated sodium hydroxide preferred to water in the above experiment (1mks)

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1. A) State the meaning of the term radical. (2mks)

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b) Name and write the chemical formular of two radicals with a charge of 2+ and 1+ (2mks)

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1. The set up below was used prepare hydrogen gas. Study it and answer the questions that follow.



1. Identify and explain the mistake in the above experiment (2mks)

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1. What would be liquid Y (1mk)

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1. Write a word equation for the reaction between hydrogen gas and lead oxide (1mks)

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1. What is the test for Hydrogen gas? (1mks)

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