**S3 HOLIDAY PACKAGE.**

1. The full symbol of nitrogen atom is

State the number of neutrons in the atom of nitrogen. *(½ mark)*

a) Write;

i) The electronic configuration of nitrogen. *(½ mark)*

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ii)The structural formula of nitrogen. *( ½ mark)*

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b) Suggest a reason why nitrogen is generally unreactive. *(01 ½ mark)*

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c) Burning Magnesium was lowered in the gas jar full of Nitrogen.

i) Write the equation for the reaction that takes (1 ½ marks)

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ii) The product formed above was dissolved in water. State what is observed. (1 marks)

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2. (a) A compound Z contains 14.3% hydrogen by mass, the rest being carbon. Calculate the empirical formula of Z. (03marks)........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

(b) The relative molecular mass of Z is 28. Determine the molecular formula of Z. (1 ½ marks)...............................................................................................................................................................................................................

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3. Manganese(IV) oxide is used in the laboratory preparation of chlorine and oxygen

a) Name one substance that when treated with manganese(IV) oxide can be used to above to produce:

i) Chlorine (½ mark)

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ii) Oxygen (½ mark)

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b) Write equations to show the reactions in which manganese(IV) oxide reacts in (a) produce:

i) Oxygen. (1½ marks)

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ii) Chlorine (1½ marks)

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4. (a) Define the term “allotropy” (1 mark)

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(b) Name

(i) One crystalline allotrope of carbon ( ½ mark)

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(ii) one amorphous allotrope of carbon ( ½ mark)

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c) State one use of the crystalline allotrope of carbon that you have named in (b) (i) (1 mark)

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d) State

(I) one word which means the relationship between carbon – 12, and carbon – 14, (1 mark)

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(ii) One use of carbon – 14 (1 mark)

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