OLGC S.2 CHEM HOLIDAY WORK

Attempt all questions in this paper. Answers to section A must be written in the spaces provided . answers to section B must be written in the answer sheet provided.

SECTION A

1. An oxide is a compound of oxygen with another element.

(a) State any three classes of oxides and in each case, name at least two example of the class stated.

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(b) The equation below shows a reaction between iron and oxygen in a moist condition.

$$4Fe_{(s)} + 3O_{2\,(g)} \rightarrow 2Fe_2O_{3(s)}$$

(i) Name the process that took place and state the name of the product formed.

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(ii) Give any one disadvantage of the process named above.

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2. A cube of ice was heated until the whole of it turned to liquid water. Also copper was burnt in air until its colour changed from brown to black.

(a) Identify out of the two, which one was a chemical process and which one was a physical process.

(i) Chemical process

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(ii) Physical process.

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(b) Outline any three differences between a physical process and a chemical process.

Physical Change	***Chemical Change***

3. The list below shows mixtures of some substances. Study it carefully and use it to answer the questions that follow it.

(i) Water and cooking oil.
(ii) Iron and sand.
(iii) Ethanol and water.

(a) State the method that is most suitable for separation of each of the mixtures. State the reason why the method stated above is the most suitable.

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(b) State what would be observed if a mixture of water vegetable oil was shaken and allowed to settle for some time. Give a reason for your answer.

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4. Hydrogen is the lightest gas known to exist on the earth.

(a) Give any four physical properties of hydrogen gas.

(i) ……..……..

(ii) ……..……..
(iii) ……
(iv) ……

(b) In the preparation of hydrogen gas, copper (ii) sulphate solution is added to the zinc granules before dilute hydrochloric acid is added. State the role of copper(ii) sulphate in the preparation of hydrogen gas.

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(c) Write an equation of reaction between copper (ii) oxide and hydrogen gas.

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(d) Name the chemical property of hydrogen gas shown in the equation in 4(c) above.

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5. State what is observed when the following are burnt in air.
(a)
(i) Copper.

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(ii) Sodium.

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(b) Write the equation of reaction for the burning of copper in air.

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(c) State any one biological use of oxygen gas.

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6. Water can be considered as hard water or soft water.
(a) What is meant by hard water?

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(b) Three samples of equal volumes of water were each put in a separate conical flask. Each of them was shaken with soap solution from the same burette and the volume of soap required to form lather was recorded. The conical flasks were refilled with the same volume and

samples of boiled and cooled water, then shaken with soap solution and the corresponding volume of soap solution required was noted. The table below shows the result.

	Sample A	Sample B	Sample C
Volume of soap solution required before boiling (cm^3)	30.0	10.0	30.0
Volume of soap solution required after boiling (cm^3)	15.0	10.0	30.0

From the table above, identify;

(i) Soft water

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(ii) Temporary hard water

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(iii) Permanent hard water

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(c) Give a reason as to why you were able to identify the stated sample in 6(b) as temporary hard water.

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SECTION B

7. Water is an essential component of society and life

(a) A senior two student found a jerry can containing a colorless liquid which he suspected to be water. What can the student use to confirm that the colorless liquid is water?
(b) State what is observed if the substance named in 7(a) above is treated with water.
(c) Give any three natural sources of water.
(d) What is meant by water pollution?
(e) Outline any four sources of water pollution.
(f) Briefly describe the process of water treatment.

END