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NAME: ……..…… SIGNATURE……..

S.4 CHEMISTRY ASSESSMENT TEST

TIME: 100 MINUTES TOPIC: CARBON & ITS COMPOUNDS

INSTRUCTIONS: ***Attempt all questions***

SECTION A

PART I

1. Which of the following statements is correct about graphite and diamond? They both
   A. Have giant structures C. Have similar physical properties
   B. Have different chemical properties D. Are very hard substances
2. Which one of the following best explains why graphite and diamond differ.
   A. Graphite is impure carbon
   B. Their densities are not the same
   C. All the 4 valency electrons of graphite are used in covalent bonding
   D. Their atomic structures are different
3. On commercial scale, sodium carbonate is prepared by;
   A. Solvery process C. Haber process
   B. Contact Process D. Photosynthesis
4. Which one of the following is a form of carbon used as a reducing agent in the extraction of some metals from their ores?
   A. Wood charcoal B. Animal Charcoal C. Coke D. Lamp Black
5. Which one of the following is NOT a property of Diamond?
   A. Is very hard
   B. Is a good conductor of electricity
   C. Burns in oxygen to produce carbon dioxide
   D. Is colourless and transparent.
6. Which one of the following allotropes of carbon is used during the manufacture of sugar?
   A. Lamp Black C. Wood Charcoal
   B. Sugar charcoal D. Animal Charcoal
7. Which one of the following substance when strongly will not produce carbon dioxide?
   A. $NaHCO_3$ B. $MgCO_3$ C. $ZnCO_3$ D. K_2CO_3
8. Which one of the following processes is NOT involved in the carbon cycle?
   A. Respiration B. Combustion C. Photosynthesis D. Lightning
9. Which one of the following substances is formed when magnesium burns in carbon dioxide?
   A. Magnesium Carbonate C. Carbon monoxide
   B. Magnesium Nitride D. Carbon
10. The following oxides of metal can be reduced by carbon except.
    A. Aluminium oxide C. Lead (II) Oxide
    B. Zinc Oxide D. Copper(II)oxide

PART II

Each of the questions 11 to 15 consists of an assertion (statement) on the left-hand side and a reason on the right-hand side.

Select

- ***A.*** *If both the assertion and reason are true statements and the reason is a correct explanation of the assertion*
- ***B.*** *If both the assertion and the reason are true statements but the reason is not a correct explanation of the assertion*
- ***C.*** *If the assertion is true but the reason is not a correct statement*
- ***D.*** *If the assertion in not correct but the reason is a correct statement.*

INSTRUCTIONS SUMMARISED:

	Assertion	Reason
A.	True	True(Reason is a correct explanation)
B.	True	True(Reason is not a correct explanation)
C.	True	Incorrect
D.	Incorrect	Correct

11.	Graphite is a soft substance	**Because**	Graphite has week Intermolecular forces.	☐
12.	A piece of magnesium continues to burn in a gas jar of carbon dioxide	**Because**	Carbon dioxide contains two to burn in a gas jar of carbon dioxide atoms of oxygen.	☐
13.	Coke is used to extract iron from its ores	**Because**	coke is an oxidizing agent.	☐
14.	Carbon dioxide and Carbon monoxide are pollutants	**Because**	both are reducing agents	☐
15.	Both graphite and diamond do not Conduct electricity	**Because**	they are allotropes of carbon	☐

PART III

Each of the questions from 16 to 20, one or more of the answers given may be correct Read each question carefully and then indicate the correct answer according to the following.

A. If 1,2 and 3 only are correct.
B. If 1 and 3 only are correct.
C. If 2 and 4 only are correct.
D. If 4 only is correct.

16. Which of the following has/have a giant molecular structure?
    1. Sulphur 2. Graphite 3. Phosphorus 4. Diamond

17. Carbon is similar to sulphur in that both
    1. Are non –metallic solids
    2. Form covalent compounds
    3. Exist in allotropic forms
    4. Form neutral oxides.

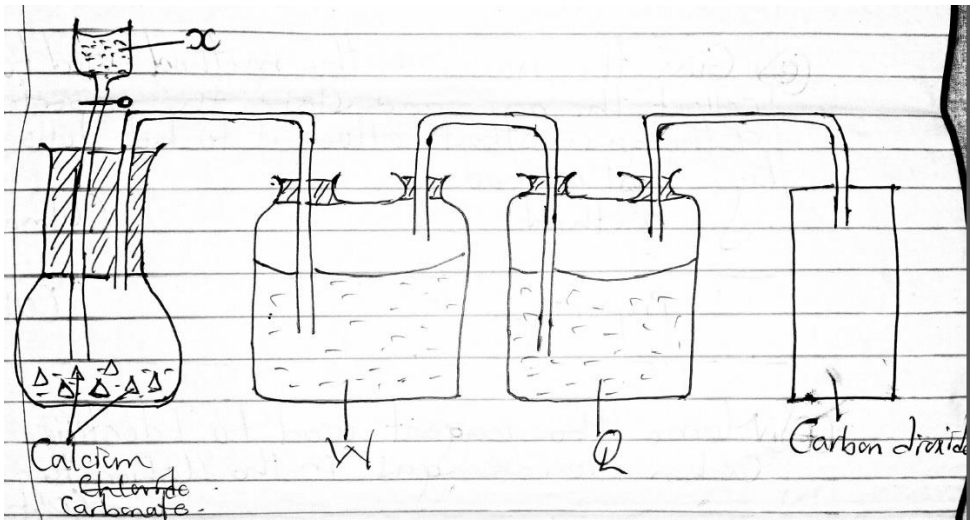
18. Which of the following is/are observed when a mixture of copper(II)oxide and charcoal is heated?
    1. Lime water milky remained colourless
    2. Lime water turned milky
    3. Black residue
    4. Reddish-Brown residue

19. Which of the following is/are **NOT** true about charcoal and sulphur?
    1. Form covalent compounds
    2. Are non-metallic solids
    3. Exist in allotropic forms
    4. Form neutral oxides

20. Which of the following is/are the crystalline form(s) of carbon?
    1. Diamond 2. Coke 3. Graphite 4. Animal charcoal

SECTION B

21. The diagram below show a laboratory preparation of carbon dioxide gas. Use it to answer the questions that follow.



(a) Identify **(03 marks)**

X……

W……

Q……

(b) State the role of; **(02 marks)**

(i) W

……..…..

(ii) Q

……...

(c) Give the chemical name and chemical formula of the solution that remains in the flask after reaction. **(01 mark)**

Chemical name: ……

Chemical formula: ……..

(d) Write the equation for the reaction taking place in the flask. **(1 ½ marks)**

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…….....

(e) Give the name of the method used to collect the gas and state the property of the gas that allows it to be collected by that method.

Method **(01 mark)**

……..

Property **(01 mark)**

…….

(f) (i) Name the reagent used to identify carbon dioxide gas in the laboratory. **(01 mark)**

……..

(ii). State what was observed when the reagent you named above is used. **(01 mark)**

…….

(iii) Write the equation for the reaction that took place in (ii) above. **(1 ½ marks)**

……..……

…….…….

(iv) State any two uses of carbon dioxide gas. **(02 marks)**

……..

……..

22. Gas P was passed over heated Zinc Oxide, the gaseous product turned lime water milky.

(a) Identify;

(i) Gas P…….. **(0 ½ mark)**

(ii) Gaseous product……. **(0 ½ mark)**

(b) State what was observed **(01 mark)**

……

……..

(c) (i) Write the equation(s) of the reaction(s) which took place **(03 marks)**

……

……

……

……

(ii). In the above reaction, gas P is acting as? **(01 mark)**

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(d) Other than zinc oxide, state two oxides of metals which react with gas P in the same way. **(03 marks)**

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(e) State what would be observed when gas P is burnt in air? **(01 mark)**

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SECTION C

23. ***(a)*** Describe the structure of

(i) graphite **(04 ½ marks)**

(ii) diamond **(04 ½ marks)**

(b) State two properties in which graphite differs from diamond. **(02 marks)**

(c) Graphite was heated in excess air and the gas given off passed through aqueous calcium hydroxide for a long time.

(i) State what was observed **(01 mark)**

(ii) Write the equation(s) for the reaction(s) **(03 marks)**

END

"What men have done, man can do"