

**ZAMANI COLLEGE KADUNA**  
**SS2 CHEMISTRY**  
**STUDY PACK TERM 1 2014-2015**

**Instructions:** Read through the following outline of topics from any of your chemistry text books and make notes on them and answer the questions that follow. All of these will be due for submission as will be communicated to you. This is part of your assessment upon resumption.

Reference: New School Chemistry by Osei Yaw Ababio

TOPIC : CARBON AND ITS COMPOUNDS.

OUTLINE TO STUDY:

- Definition of allotropy.
- Allotropes of Carbon – their properties and uses.
- Combustion of all forms of Carbon.
  - Complete combustion and equation.
  - Incomplete combustion and equation.
- Destructive distillation of Coal and Four major products of the process.
- Carbon(IV)oxide
  - Laboratory preparation with well labeled diagram
  - Industrial preparation
  - Physical properties
  - Chemical reactions/properties
  - Test for Carbon(IV)oxide
  - Uses of Carbon(IV)oxide.
- Carbon(II)oxide
  - Laboratory preparation
  - Physical properties
  - Chemical reactions/properties
  - Test for Carbon(II)oxide.
  - Uses of Carbon(II)oxide
- Water gas and Producer gas production
- Carbon cycle
  - Processes that liberate Carbon (iv) oxide into the atmosphere.
  - Processes which absorb Carbon (iv) oxide from the atmosphere.

**Answer all questions;**

- (1) Which of the allotropes of carbon is:
- a. The purest form of amorphous carbon.
  - b. The hardest
  - c. An excellent dry solid lubricant
  - d. A good conductor of electricity
  - e. Produced when bones of animals are heated in a limited supply of air
  - f. Used as gas-masks for adsorbing poisonous gases
  - g. Used in manufacturing rubber tyres, black shoe polish and carbon paper.
- (2) State the product of the following reactions
- a. Heating lampblack in limited supply of air.

- b. Action of Conc.  $\text{H}_2\text{SO}_4$  on sugar crystals
- c. Action of dilute acid on metals (metals above hydrogen in the activity series)
- d. Heating Coal in the absence of air to a very high temperature.
- e. Dehydration of ethanedioic acid
- f. Action of dilute HCl on Magnesium trioxocarbonate(iv).

- (3) State **two** processes each that;
- i. absorb  $\text{CO}_2$  from the atmosphere.
  - ii. liberate  $\text{CO}_2$  to the atmosphere.
- (4) i. Name the drying agent for  $\text{CO}_2$     ii. Name the reducing agent for converting iron ore  $\text{Fe}_2\text{O}_3$  to Fe.
- (5) Give **two** reasons why  $\text{CO}_2$  is used in:
- i. Fire extinguisher
  - ii. Carbonated / fizzy drinks
- (6) Differentiate between drying agents and dehydrating agents.
- (7) State the role of the following;
- i. fused  $\text{CaCl}_2$  in the laboratory preparation of  $\text{CO}_2$ .
  - ii. concentrated  $\text{H}_2\text{SO}_4$  in the production of sugar charcoal.