BANGLADESH INTERNATIONAL TUTORIAL (UTTARA)

WORKSHEET (CHEMISTRY)

CLASS: X

Week - 01	**Day -01**
	(a) The amount of carbon dioxide in today's atmosphere is different from that in the Earth's early atmosphere. (i) State a way in which carbon dioxide is removed from the atmosphere. .... (ii) State a way in which carbon dioxide was added to the atmosphere before Humans were on the Earth. .... (c) Methane is a hydrocarbon. When methane burns completely, it reacts with oxygen to form carbon dioxide and one other product. (i) Write the word in equation for this reaction. ..... (ii) Which of these is used in the largest amount as a fuel? Put a cross ( ) in the box next to your answer. ☒ **A** bitumen ☒ **B** diesel oil ☒ **C** hydrogen ☒ **D** oxygen

Week-01	**Day -02**

1. Metals are found in the Earth's crust.

(a) Un reactive metals are found as uncombined metals.

Which of these metals is usually found uncombined in the Earth's crust?

Put a cross in the box next to your answer.

☐ gold
☐ iron
☐ potassium
☐ zinc

(b) (i) Lead can be produced by heating lead oxide with carbon.

Complete the word in equation for this reaction.

Lead oxide + ... = lead + ...

(ii) In this reaction, lead oxide is reduced.

Complete the sentence.

Lead oxide has been reduced because it has lost

..... .

	Day-03
Week-01	**1** (a) Dilute hydrochloric acid can be used to make salts. These salts are called chlorides. Which of the following will **not** react with dilute hydrochloric acid to produce Zinc chloride? Put a cross ( ) in the box next to your answer. ☐ zinc carbonate ☐ zinc hydroxide ☐ zinc oxide ☐ zinc sulfate (b) Hydrochloric acid is present in the stomach. (i) Describe the purpose of hydrochloric acid in the stomach. .... (ii) Indigestion tablets can be used to neutralize excess hydrochloric acid in the Stomach. Some indigestion tablets contain aluminium hydroxide. Write the word equation for the reaction of aluminium hydroxide with hydrochloric acid. ....

Week-01

Day-04

1. How many grams of CO_2 are produced in the combustion of 50.0 g of propane, C_3H_8? The molar g/mol.

   $C_3H_8(g) + 5\ O_2(g) \rightarrow 3\ CO_2(g) + 4\ H_2O(l)$

   Ans:

1) Determine the amount of oxygen produced when 0.549 g of $KClO_3$ decomposes. The molar

   $2KClO_3(s) \rightarrow 2\ KCl(s) + 3\ O_2(g)$

   Ans:

	Day-05
	3. How many grams of $C_6H_{12}O_6$ are needed to form 7.500 g of C_2H_5OH? The molar mass of $C_6H_{12}O_6$ $C_6H_{12}O_6(aq) \rightarrow 2\ C_2H_5OH(aq) + 2\ CO_2(g)$ Ans:
Week-01	4) Find the percentage by mass of Copper in Copper(II)Oxide. Ans:

Week-02	**Day-01**
	1) Find the empirical formula of a compound containing82.7% **C** and17.3% **H** by mass. Ans: 2) A compound has the empirical formula CH_2 .If the relative formula mass is 56,work out the molecular formula. Ans: 3) Calculate the number of moles of 20g of MgO. Ans:

Week-02	Day-02

0.240g of Magnesium is reacted with an excess of dilute H_2SO_4 . (Ar:Mg=24).

$Mg+H_2SO_4=MgSO_4+H_2$

i)Calculate the amount in moles of Mg which reacted.

Ans:

ii) Calculate the number of moles of Hydrogen produced in the reaction.

Ans:

iii) Calculate the volume of Hydrogen (Measured at rtp) produced in the reaction.

Ans:

iv) Calculate the molecular mass of $MgSO_4$?

Ans:

Week-02

Day-03

1) State the number of valence electrons in each of the following atoms, and then draw electron dot diagrams to represent them.

Na _____ O_____ Si_____ F_____ C_____

Na O Si F C

2) State the Octet rule. Write the electron configuration for the following atoms and ions, and explain how the Octet rule applies in each case:

Octet Rule:

i)Na _____

Na^{1+}_____

explain:

ii)O _____

O^{2-}_____

explain:

Week-02	Day-04
	1) State the Octet rule. Write the electron configuration for the following atoms and ions, and explain how the Octet rule applies in each case: Al _____ Al^{3+} _____ explain: N _____ N^{3-} _____ explain: Mg _____ Mg^{2+} _____ explain:

	Day-05
Week-02	1) For each of the following pairs of elements, use electron dot diagrams to show the transfer of electrons between atoms, the formulas for ions formed, and the chemical formula of the ionic compound formed. a)Sodium and fluorine b) Calcium and chlorine c) Magnesium and sulfur d)Aluminum and oxygen

Week-03	Day-01
	1) How are ionic bonds and covalent bonds different? Ans: 2) Describe the relationship between the length of a bond and the strength of that bond. Ans: 3) Identify the type(s) of bond(s) found in the following molecules: a. CCl_4 _____ b. Li_2O _____ c. NF_3 _____ d. $CaSO_4$ _____ e. SO_2 _____ f. $Mg(OH)_2$ _____

Week-03	Day-02
	7) Draw Lewis Structures for the following molecules: a. CO_2 b. $BeCl_2$ c. H_2O d. BF_3 e. CCl_4

Week-03	Day-03
	Complete and balance the following redox reactions (skeleton equations) using the half-reaction method: 1. $Zn(s) + H^+(aq) \Longrightarrow Zn^{2+} + H_2(g)$ (acidic solution) _____ (reduction) _____ (oxidation) _____ (overall) 2. $I^-(aq) + NO_2^-(aq) \Longrightarrow I_2(s) + NO(g)$ (acidic solution) _____ (reduction) _____ (oxidation) _____ (overall)

	Day-04
Week-03	**Which of the following terms would best classify a sample of pure sodium chloride?** **i)An element** **ii) A highly reactive metal** **iii)A poisonous gas** **iv)A compound** **What feature of water molecules enables ionic substance to dissolve in water?** **i) The water molecules have a certain shape that allows them to surround the ions in solution.** **ii) The water molecules react with the ions.** **iii) The water molecules are sticky and can adhere to the ions.** **iv)The water molecules are polar and are attracted to the positive and negative ions, surrounding them.** **Which of the following molecules would one expect to have a non-polar covalent bond?** **i .HCl** **ii .F_2** **iii.HF** **iv.ClF** **How many electrons are being shared between the two carbon atoms in the compound ethyne? Ethyne has the Lewis structure: H−C≡C−H** **i.1** **ii.2** **iii.3** **iv.6** **If a covalent bond were to be formed between a nitrogen atom (electronegativity 3.0) and an oxygen atom (electronegativity 3.5), which of the following statements would best describe such a bond?** **i.Non-polar covalent** **ii.Polar covalent where the oxygen atom carried the partial negative charge** **iii.Polar covalent where the nitrogen atom carried the partial negative charge** **iv.Polar covalent where the oxygen atom carried the partial positive charge**.

	Day-05
Week-03	1 (a) Complete the sentence by putting a cross ( ) in the box next to your answer. Ethanol can react to form ethanoic acid, CH_3COOH. In this reaction ethanol is ☐ neutralized ☐ oxidized ☐ precipitated ☐ reduced (b) Draw the structure of a molecule of ethanoic acid, CH_3COOH, showing all the bonds. Ans: (c) When a piece of magnesium ribbon is added to dilute ethanoic acid, a reaction occurs. (i) Complete the word equation for this reaction. Magnesium + ethanoic acid ⟶

Reference Book: Edexel Int'l GCSE(9-1)

(Chemistry) Student Book

By-Jim Clark ,Steve Owen