SCHEMES OF WORK 2022

CHEMISTRY FORM 3

TERM 1-3

CHEMISTRY FORM THREE TERM ONE 2022							
WK NO.	L/ NO	TOPIC/ SUBTOPIC	LESSON / SPECIFIC OBJECTIVES	TEACHING / LEARNING ACTIVITIES	MATERIALS / RESOURCES	REF	REMARKS

1	1	**GAS LAWS** Boyle's law.	*By the end of the lesson, the learner should be able to:* State Boyle's law. Explain Boyle's law using kinetic theory of matter. Represent Boyle's law mathematically and graphically. Solve further problems involving Boyle's law.	Teacher demonstration – Use syringes / pumps to show variation of volume with pressure. Teacher asks probing questions leading to statement of the law. Discuss the cause of build-up-in pressure. Q/A: relation between volume and pressure mathematically and graphically. Derive the relation $P_1V_1=P_2V_2$, and sketch graphs to illustrate Boyle's law. Worked examples. Assignment. Supervised exercise: Volume in cm^3, m^3, litres, and pressure in Pa, mmHg, cmHg, atmospheres. Assignment.	Chart Volume-pressure relationship. Syringes.	***K.L.B. BK III*** *PP. 1-5* ***Longhorn Book III*** *PP 1 -4*	

	2	Charles' law.	*By the end of the lesson, the learner should be able to:* State Charles' law. Explain Charles' law using kinetic theory of matter.	Teacher demonstration:- To show expansion of air when heated and contraction when pressure is constant. Explain increase in volume when temperature is raised. Q/A: - relation between volume and temperature, leading to Charles' law.	Coloured water, Glass tube, Warm water, Cork and Flask.	***.K.L.B.*** ***BK III*** *P. 6* *Longhorn Book III PP 9-11*	
	3-4	Temperature in Degree Celsius and Kelvin. Equation and graphs from Charles' law.	Convert temperature in degree Celsius to Kelvin and vice-versa.	Teacher explains inter-conversion of the units. Students complete a table of temperature in the two units.		***K.L.B.*** ***BK III*** *P. 10* *Longhorn Book III P 11*	
	5	Charles' law-equation and graphical representation.	Express Charles' law with equations. Give a graphical representation of Charles' law.	Derive equations from volume and temperature relationship. Exposition: - Teacher exposes a volume-temperature graph and extrapolates it to obtain the absolute temperature. The definition of absolute temperature is exposed.		***K.L.B. BK III*** *PP. 6-7* *Longhorn Book III P 10*	
	1	Numerical questions on Charles' Law.	Solve numerical problems based on Charles' Law.	Worked examples. Supervised exercise. Assignment.	Calculators.	***K.L.B.*** ***BK III*** *P. 12* *Longhorn Book III PP 12-14*	
2	2	Combined Gas Law.	Derive the Gas Law. Derive the combined gas law equation. Solve numerical problems using the equation.	Q/A: - Combining Boyle's and Charles' Laws. Worked examples.	Calculators.	***K.L.B.*** ***BK III*** *P. 12* *Longhorn Book III PP 14-16*	

	3	Standard conditions, S.T.P. conditions and R.T.P. conditions.	State standard conditions of temperature and pressure of an ideal gas. State room temperature and pressure of a gas. Use standard conditions in problem solving.	Exposition of s.t.p. and r.t.p. Problem solving.		***K.L.B.*** ***BK III*** *P. 14*	
	4-5	Diffusion.	*By the end of the lesson, the learner should be able to:* Define diffusion. Describe experiments to show diffusion.	Group experiments. Diffusion of $KMnO_4$ crystals, concentrated ammonia solution.	$KMnO_4$ crystals, Litmus papers.	***K.L.B. BK III*** *PP. 14-15* *Longhorn Book III P 19*	
	1	Rates of diffusion.	Compare rates of diffusion of ammonia gas and hydrogen chloride in air.	Teacher demonstration: - To deduce rate of diffusion of ammonia gas and hydrogen chloride. Q/A: - Students calculate ratio of rates of diffusion of the gases.		***K.L.B.*** ***BK III*** *PP. 18-19* *Longhorn Book III 21*	
3	2	Graham's Law.	State Graham's Law. Represent Graham's Law mathematically. Carry out numerical tasks.	Review the experimental results above. Compare the rates of diffusion with density of a gas leading to Graham's Law. Q/A: - Graham's Law using mathematical expressions. Worked examples. Solve problems involving RMM, equal volumes of the gases involved. Supervised practice. Assignment.	Calculators	***K.L.B. BK III*** *PP. 22-26* *Longhorn Book III PP 22-24*	
	3,4	**THE MOLE** Mole, molar mass and R.A.M.	Define the term mole as a quantity of measurement. Relate the mole to R.A.M and molar mass.	Discuss various analogies that lead to the definition of the mole. Expose the meaning of R.A.M., Avogadro's constant and molar mass.	Chart- table of molar masses of elements.	***K.L.B. BK III*** *PP. 27-31* *Longhorn Book III* *PP 34-35*	

	5	Number of moles in a substance.	Calculate number of moles in a given mass of a substance.	Worked examples. Supervised practice.		***K.L.B .BK III*** *P. 34* *Longhorn* *BK III* *PP 39-40*	
4	1	Relative molecular mass & Relative formula mass.	Define relative molecular mass. Calculate RMM of a compound.	Q/A: - Review formulae of compounds. Complete a table of compounds and their molecular / formula mass.	Calculators.	***K.L.B.BK III*** *PP. 34-35* *Longhorn Book III PP 44-60*	
	2	Moles and Avogadro's number.	Calculate number of particles in a given number of moles.	Review standard form of numbers. Worked examples. Supervised exercise.	Calculators.	***K.L.B.BK III*** *PP. 3132* *Longhorn* *Book III* *PP 30-31*	
	3	Empirical Formula.	*By the end of the lesson, the learner should be able to:* Define the term empirical formula of a compound. Determine empirical formula experimentally. Determine empirical formula of a compound given percentage composition by mass.	Group experiments: - Burning magnesium / copper in air to obtain mass of metal and mass of oxygen involved. Determine mole ratio, hence the empirical formula. Worked examples. Supervised practice. Assignment.		***K.L.B.BK III*** *PP. 41-43* *Longhorn Book III PP 64-71*	
	4	Molecular formula.	Define molecular formula of a compound. Find molecular formula given percentage composition of a compound by mass.	Worked examples. Supervised practice.	Calculators.	***K.L.B.BK III*** *P. 45* *Longhorn* *Book III* *PP 73-75*	
	5	Concentration of a solution.	Define concentration of a solution. Find concentration of a solution in grams/litre and moles/litre.	Q/A: - Equivalent ratios, e.g. 4g dissolved in 500cm^3 and 8g in 1 litre. Worked examples on concentration of solutions.		***K.L.B. BK III*** *PP. 46-48* *Longhorn Book III PP 76-81*	
5	1	Molarity of a solution.	Define molarity of a solution. Find molarity of a solution in M/dm^3	Teacher explains that molarity of a solution is given in moles of the solute per litre. Worked examples. Supervised exercise.		*K.L.B. BK III* *PP. 48-49* *Longhorn* *Book III* *PP 76-81*	

	2	Preparation of molar solutions. Calculations on molar solutions.	Define molar solutions. Prepare molar solutions. Solve numerical calculations on molar solutions. Problems on molar solutions.	Q/A: - Description of preparation of molar solutions. Worked examples. Supervised exercise. Assignment.	Volumetric flasks, teat droppers/wash bottle. Sodium hydrogen pellets. Weighing balance.	*K.L.B. BK III* *PP. 50-51* *Longhorn Book III* *PP 78-81*	
	3	Dilution of solutions.	Calculate molarity of a solution after dilution.	Group experiments. Calculations.		*K.L.B. BK III* *PP. 76-81*	
	4	Stoichiometry of a chemical reaction.	To determine mole ratio of given reactions. To define a stoichiometric equation. To investigate and determine Stoichiometric equations of various reactions.	Group experiments: - Determine masses, hence moles of reacting $CuSO_4$ solution and iron metal. To write stoichiometric equations of the above reactions.	$CuSO_4$ solution and iron metal.	*K.L.B. BK III* *P. 56,62* *Longhorn Book III* *PP 87-92*	
	5	**HALF**	**TERM**	**BREAK**			
6	1	**Volumetric Analysis**. Apparatus used in titration experiments. Titration process.	To use and read a pipette and a burette. To define titration as a process. Define a titration end-point.	Discussion and practical use of the apparatus. *Emphasis is laid on need to sterilize the apparatus after use.* Review by Q/A: - -Indicators and colour changes. -Choice of indicators. -Balanced chemical equations. Discuss characteristics of a good titre, when an an-end point is attained.	Pipettes Burettes. Indicators Suitable acid and base.	*K.L.B. BK III* *PP. 63-67* *Longhorn Book III* *PP 104-8*	
	2	Titration experiment (Neutralization reaction)	To carry out a titration experiment and obtain accurate results. To carry out calculations from experimental results.	Class experiments: - To neutralize HCl with NaOH solution. Fill in a table of results. Find the average base used. Step-by-step calculations.	Calculators.	*K.L.B. BK III* *P. 66* *Longhorn Book III PP 108-114*	

	3	Basicity of an acid.	To define basicity of an acid.	Complete a table of number of replaceable hydrogen ions of an acid; hence define basicity of an acid. Write corresponding ionic equations.		*K.L.B. BK III* *P. 73*	
	4	Standardization of HCl.	To define standardization of HCl.	Class experiments.	Dilute HCl, Na_2CO_3 solutions.	*K.L.B. BK III* *PP. 74-75*	
	5	Concentration of HCl.	To calculate concentration of HCl from experimental results.	Calculations & supervised practice.		*K.L.B. BK III* *PP. 74-75*	
7	1	Redox Titration Reactions.	To standardize a solution with an iron (II) salt.	Experiment and calculations.	Potassium Magnate (VII)	*K.L.B. BK III* *PP. 74-75* *Longhorn* *Book III* *PP 114-115*	
	2	Water of crystallization.	To determine amount of water of crystallization in ammonium iron sulphate crystals.	Teacher exposes the formula of water of crystallization. Class experiment. Filling in a table of results.	Ammonium Iron (II) Sulphate crystals. Dilute sulphuric (VI) acid.	*K.L.B. BK III* *P. 76*	
	3	Formula mass of ammonium iron (II) sulphate.	To find formula mass of ammonium iron (II) sulphate.	Calculations from experimental results.		*K.L.B. BK III* *PP. 76 -77*	
	4-5	Formula mass of a given salt.	To solve numerical problems involving water of crystallization.	Problem solving from sample results.		*K.L.B. BK III* *P.77*	
8	1	Atomicity of gases.	To define atomicity of gases.	Review by Q/A atoms and molecules; hence the definition. Discuss a table of gases and their atomicity.		*K.L.B. BK III* *PP. 78 -80* *Longhorn BK III* *PP 126-128*	

	2	Mass and volume of gases.	To determine mass and volume of gases. To define molar gas volume.	Teacher demonstration: - Determining mass of known volumes of oxygen / CO_2. Use the above results to describe volume of one mole of a gas. Discuss molar gas volume at R.T.P and S.T.P conditions.	Lubricated syringes Oxygen/ CO_2.	*K.L.B. BK III* *P. 81* *Longhorn BK III* *PP 126-127*	
	3	Combining volumes of gases.	To compare combining volumes of two reacting gases.	Teacher demonstration: - Determining volumes of reacting gases; hence deduce volume rations.		*K.L.B BK III* *P. 82*	
	4&5	Gay Lussac's Law.	To state Gay Lussac's Law. To compare Gay Lussac's Law with Avogadro's Law. To solve numericals using Gay Lussac's Law.	Teacher exposes the law; and compares it with Gay Lussac's Law. Worked examples. Supervised practice.		*K.L.B. BK III* *P. 85* *Longhorn Book III* *PP 129-131*	
9-10		**END OF TERM EXAMS AND CLOSING OF SCHOOLS**					

CHEMISTRY FORM THREE TERM TWO 2022

WK NO.	*L/ NO*	*TOPIC/ SUBTOPIC*	*LESSON / SPECIFIC OBJECTIVES*	*TEACHING / LEARNING ACTIVITIES*	*MATERIALS / RESOURCES*	*REF*	*REMARKS*
1	1	**ORGANIC CHEMISTRY (I)** Hydrocarbons.	To define organic Chemistry. To define a hydrocarbon. To identify groups of hydrocarbons. To describe the carbon atom.	Discuss composition of the carbon atom; hence deduce number of valence electrons. Exposition of new terms.		K.L.B. BK III *P. 92* *Longhorn Book III* *P 135*	
	2	Alkanes.	To identify various alkanes. To list sources of alkanes. To state uses of different fractions of crude oil. To define cracking of alkanes.	Expose various alkanes. Discuss the biomass digester, fractional distillation of crude oil and uses of the fractions. Discuss the cracking process.	Chart of biomass digester.	K.L.B. BK III *PP. 93-94* *Longhorn Book III* *PP 135-6*	
	3	Naming Alkanes.	To identify various alkanes. To define a homologous series.	Discussion and exposition of new concepts.		K.L.B. BK III *PP. 94-98* *Longhorn Book III* *PP 136-139*	
	4	Members of Alkane series.	To name members of alkane series and identify their characteristics. To draw the structures of alkane series.	Discussion and exposition of new concepts.	Chart- structure of alkanes.	K.L.B. BK III *PP. 97-99* *Longhorn Book III* *PP 137-9*	
	5	Isomerism in alkanes.	To draw and name isomers of simple hydrocarbons.	Discussion and exposition of new concepts.	Models.	K.L.B. BK III *PP. 101-102* *Longhorn Book III* *PP 141-2*	

2	1	Laboratory preparation of a given alkane.	To describe laboratory preparation of a given alkane. To state physical properties of the gases prepared.	Teacher demonstration. Discussion.	Sodium ethanoate, sodalime, Pestle and mortar.	K.L.B. BK III *P. 103* *Longhorn Book III PP 146*	
2	2	Trend in physical properties of alkanes.	To describe the trend in physical properties of alkanes.	Study a table of comparative properties of alkanes. Make deductions from the table.		K.L.B. BK III *P. 105* *Longhorn Book III PP 148-9*	
	3	Chemical properties of alkanes.	Describe chemical properties of alkanes.	Discussion Examples of balanced equations.		K.L.B. BK III *P. 107* *Longhorn Book III PP 148-9*	
	4	Substitution reactions involving alkanes. Uses of alkanes.	To describe substitution reactions involving alkanes. To list down uses of alkanes.	Discussion Teacher elucidates uses of alkanes.		K.L.B. BK III *P. 108* *Longhorn Book III PP 149-50*	
	5	Alkenes. Molecular formulae of alkenes.	To write molecular formulae of alkenes.	Examine table of members of alkenes. To identify members of alkene series.		K.L.B. BK III *PP 153-4*	
3	1	Naming alkenes.	To name various alkenes.	Q/Q: Nomenclature in alkenes. Compare alkenes; hence deduce names of various alkenes.		K.L.B. BK III *PP. 110-113* *Longhorn Book III PP 154-6*	
	2	Alkene isomerism.	Differentiate between branching and positional isomerism.	Discussion and drawing of molecular structures.		K.L.B. BK III *P. 113* *Longhorn Book III PP 158-60*	

	3	Preparing ethene in the lab. Physical & chemical properties of ethene.	To describe lab preparation of ethene. To describe physical properties of ethene and other alkenes. To explain halogenation and hydrogenation reactions.	Teacher demonstration: - Carry out tests on ethene as students note down the observations in a table. To discuss physical properties of ethene and other alkenes.		K.L.B. BK III *P 162-168*	
	4	Alkenes and oxidizing agents.	To describe reactions of alkenes with oxidizing agents.	Review the double bonds in alkenes. Review reduction process, oxidizing agent. Discuss reactions of alkenes with conc. H_2SO_4, acidified potassium chromate. Expose hydrolysis process.		K.L.B. BK III *PP. 120-121* *Longhorn Book III* *PP 166-8*	
	5	Uses of alkenes & Topic review.	To list down uses of alkenes.	Teacher elucidates uses of alkenes. Assignment.		K.L.B. BK III *P. 121* *Longhorn Book* *PP 170-1*	
4	1	**Alkynes.** Nomenclature. Isomerism in alkynes	To identify various alkynes. To name and draw structures of alkynes. To draw structure showing positional and branching isomerism	Discuss a table of members of alkynes. Review naming of alkanes and alkene and compare this with naming of alkynes. Discussion and drawing structures.		K.L.B. BK III *P. 122-125* *Longhorn Book III* *PP 126-129* *171-178*	
	2	Physical properties of ethyne.	To list down physical properties of ethyne.	Teacher demonstration: Preparation of ethyne. Deduce properties of other alkynes.		K.L.B. BK III *PP. 125-126* *Longhorn Book III* *PP 197-80*	
	3	Chemical properties of ethyne.	To describe combustion, halogenation and hydrogenation processes.	Discussion and writing of equations.		K.L.B. BK III *PP. 127-129* *Longhorn Book III* *PP 180-184*	

	4	Tests for alkynes. Uses of alkynes.	To describe tests for alkynes and state uses of alkynes.	Discussion and explanations. Assignment.		K.L.B. BK III *P.130* *Longhorn Book III* *PP 180-84*	
	5	**NITROGEN & ITS COMPOUNDS.** Isolation of nitrogen from air. Industrial production of nitrogen. Lab. preparation of nitrogen.	Describe isolation of nitrogen from air. Describe industrial production of nitrogen.	Teacher demonstration, explanations and equations. Discussion and description. Drawing schematic diagram for the process.	Aspirator, copper turnings, gas jar, combustion tube, trogh.	K.L.B. BK III *PP. 134-136* *Longhorn Book* *P 186-189*	
5	1	Industrial production of nitrogen.	Describe industrial production of nitrogen.	Discussion and description. Drawing schematic diagram for the process.		K.L.B. BK III *PP.135-136* *Longhorn Book* *PP 188-9*	
	2	Lab. preparation of nitrogen.	Describe lab preparation of nitrogen.	Teacher demonstration: Students' record observations made from tests on the gas. Writing equations of reactions.	Ammonium chloride, sodium nitrate	K.L.B. BK III *P. 137* *Longhorn Book III* *P 190-1*	
	3	Physical and chemical properties of nitrogen. Uses of nitrogen.	State physical and chemical properties of nitrogen. List down uses of nitrogen.	Discussion and writing equations.		K.L.B. BK III *P. 138* *Longhorn Book III* *PP 191-2*	

	4	Nitrogen (I) oxide. Lab preparation. Properties and uses of Nitrogen (I) oxide.	To describe Nitrogen (I) oxide. To list down physical properties of nitrogen (I) oxide. To describe chemical properties of nitrogen (I) oxide. To list down uses of nitrogen (I) oxide.	Teacher demonstration: - Carry out tests on the gas. Students record observations in a table. Guided discussion. Q/A: Deductions from tests carried out. Discussion of chemical properties and writing of equations. Teacher elucidates uses of nitrogen (1) oxide	Ammonium nitrate.	K.L.B. BK III *PP. 139-141* *Longhorn Book III PP 195-6*	
	5	**HALF TERM BREAK**					
6	1	Nitrogen (II) oxide. Lab preparation .Properties of the gas.	To describe lab preparation of nitrogen (II) oxide. To list down physical properties of nitrogen (II) oxide To describe chemical properties of nitrogen (11) oxide	Class experiment: Preparation and carrying out tests on the gas. Observations recorded in a table. Q/A: Deductions from tests carried out. Discussion of chemical properties and writing of equations. Carry out a confirmatory test for the presence of the gas.		K.L.B. BK III *P. 142-143* *Longhorn Book III PP 192-201*	
	2	Nitrogen (1V) oxide Lab preparation.	To describe nitrogen (IV) oxide lab preparation.	Teacher demonstration: - Preparation of the gas and corresponding equation. Tests on the gas and make observations.	Conc. nitric acid, copper turnings.	K.L.B. BK III *PP. 144-145*	
	3	Properties of Nitrogen (IV) oxide.	To list down physical properties of nitrogen (IV) oxide To describe chemical properties of nitrogen (IV) oxide To state uses of nitrogen (1V) oxide.	Deduce physical properties from the table of observations. To describe chemical properties from the table of observations. Discuss uses of nitrogen (1V) oxide.		K.L.B. BK III *PP. 144-147* *Longhorn Book III P 204*	

	4	Ammonia. Lab preparation of ammonia.	To describe lab preparation of ammonia	Q/A: Structure of ammonia. Group experiments: Preparation of ammonia. Tests on the gas.	$Ca(OH)_2$, NH_4Cl Solutions, CaO, litmus papers.	K.L.B. BK III *PP. 147-148*	
	5	Properties of ammonia. Solubility of ammonia Reaction of ammonia with metal ions.	To list down physical properties of ammonia. To describe an experiment to determine solubility of ammonia. To prepare aqueous solution of ammonia. To carry out tests of aqueous ammonia on metal ions.	Deduce physical properties from the observations above. Discuss chemical properties from the observations above. Write down chemical equations. Teacher demonstration. Discussion.		K.L.B. BK III *P. 150-153*	
7	1	Ionic equations of above reactions.	To write iIonic equations of above reactions.	Discuss precipitation of metal hydroxides by aqueous ammonia. Confirmatory tests for various concentrations.		K.L.B. BK III *P.154* *Longhorn BK III P 223*	
	2	Burning ammonia in the air. Reaction of ammonia with copper (II) Oxide.	To describe burning ammonia in the air. To name products formed when ammonia reacts with hot $CuCl_2$ solid. To explain reducing properties of ammonia	Teacher demonstration Discussion Chemical equations of reactions Teacher demonstration and discussion. Write down equations for the reactions..	Conc. Ammonium solution Hot platinum rod Oxygen. Granular $CuCl_2$ Combustion tube, Dry ammonia U-tube Gas jar.	K.L.B. BK III *P. 158* *Longhorn Book III PP 219*	
	3	Haber process.	Identify raw materials for Haber process and how they are obtained in large scale. Discuss the Haber process. Represent Haber process in a schematic diagram.	Discussion and explanations.	Chart- schematic diagram.	K.L.B. BK III *PP. 159-160 225-226*	

	4	Uses of ammonia.	To list down uses of ammonia. To list down nitrogenous fertilizers.	Teacher elucidates uses of ammonia and nitrogenous fertilizers.		K.L.B. BK III *P. 161* *Longhorn Book III PP 126 -226*	
	5	Nitric acid. Lab preparation. Nitric acid Industrial manufacture Reaction of dilute Nitric acid with metals. Nitric acid and carbonates.	To describe lab preparation of nitric acid. To describe industrial manufacture of nitric acid. To describe reaction of dilute nitric acid with metals. To write equations of reactions of dilute nitric acid with metals. To describe action of nitric acid on carbonates and hydrogen carbonates	Teacher demonstration. Write equations of reaction. Discussion. Class experiment:- making observations and recording them in a table. Discuss the observations. Write down equations for the reactions. Group experiments: - Action of Nitric acid on hydrogen carbonates.	Retort stand Conc. H_2SO_4 KNO_3	K.L.B. BK III *P. 163-167*	
8	1	Reaction of dil. nitric acid with hydrogen carbonates. Dilute nitric acid and metal hydroxides and oxides.	Write equations for reaction of dil. nitric acid with hydrogen carbonates. Predict results of reacting dilute nitric acid with metal hydroxides and oxides	Discussion and corresponding equations. Group experiments & writing equations for the reactions.		K.L.B. BK III *P. 167-168*	
	2	Reaction of nitric acid as an oxidizing agent.	Describe reactions of nitric acid as an oxidizing agent.	Class experiments: - Explain observations made.	Nitric acid acidified iron sulphate, sulphur, and copper metal.	K.L.B. BK III *PP. 169-170* *Longhorn Book III PP 239 -240*	
	3	Uses of nitric acid & nitrates.	To state uses of nitrates. To describe preparation of nitrates.	Discussion Equations for the reactions for preparation of nitrates.		K.L.B. BK III *P. 171* *Longhorn Book III PP 240*	

	4	Action of heat on nitrates. Test for nitrates.	To describe action of heat on nitrates. To carry out tests on nitrates.	Class experiments. Observe the results before and after heating. Class experiments. Make observations and deductions. Discuss the brown ring test for nitrates.	Solutions of $NaNO_3$, $Zn(NO_3)_2$, $Cu(NO_3)_2$ and $Al(NO_3)_3$.	*K.L.B. BK III P. 171-174*	
	5	Nitrogen compounds and the environment.	To explain the pollution of nitrogen compounds in the environment. To state ways of reducing environmental pollution by nitrogen compounds.	Brief guided discussion.		K.L.B.BK III *PP. 173-174* *Longhorn Book III PP 244-6*	
9-10		***END OF SECOND TERM - ASSESSMENT TEST***					

CHEMISTRY FORM THREE TERM THREE 2022

WK NO.	*L/NO*	*TOPIC/ SUBTOPIC*	*LESSON/SPECIFIC OBJECTIVES*	*TEACHING/LEARNING ACTIVITIES*	*MATERIALS / RESOURCES*	*REF*	*REMARKS*
1	1	**SULPHUR AND ITS COMPOUNDS** Extraction of sulphur.	To describe extraction of sulphur by Frasch process.	Illustrate and discuss extraction of sulphur.	Chart-the Frasch process.	K.L.B. BK III *PP.180-181* *Longhorn Book III PP 126-129*	

	2	Allotropes of sulphur.	To identify allotropes of sulphur. To describe preparation of allotropes of sulphur.	Discussion and exposition of new concepts.		K.L.B. BK III *PP. 182-183* *Longhorn Book* *PP 126-129*	
	3	Physical & chemical properties of sulphur. Heating of sulphur.	To list physical properties of sulphur. To describe effects of heat on sulphur. To investigate and describe chemical properties of sulphur.	Class experiment: Solubility of sulphur in water, benzene, e.t.c,. Class experiments: Heating sulphur gently then strongly. Discuss the observations.		K.L.B. BK III *P.184* *Longhorn I* *Book III* *PP 253-255*	
	4	Chemical properties of sulphur.	To investigate and describe chemical properties of sulphur.	Group experiments. Discuss observations. Write corresponding equations.		K.L.B.BK III *PP.188-190* *Longhorn* *Book III* *PP 256-8*	
	5	Uses of sulphur. Sulphur dioxide.	State uses of sulphur. Describe lab. preparation of sulphur dioxide.	Teacher elucidates uses of sulphur. Teacher demonstration:- Preparation of sulphur dioxide in a fume chamber/in the open. Carrying out tests on the gas.		K.L.B.BK III *PP 191- 192* *Longhorn Book* *P 258*	
2	1	Physical properties of sulphur dioxide.	To list down physical properties of sulphur dioxide.	Discuss the above tests.		K.L.B.BK III *PP 193* *Longhorn* *Book III* *PP 262-3*	
	2	Acidic properties of SO_2.	To carry out experiments to determine acidic properties of SO_2.	Teacher demonstration to verify acidic properties of sulphur dioxide. Write equations.		K.L.B.BK III *P. 193* *Longhorn* *Book III* *PP 262-3*	

	3	Reducing action of SO_2.	To verify reducing action of SO_2.	Class experiments: make observations and draw conclusions. Write balanced corresponding equations.	Experimental worksheets.	K.L.B.BK III *P. 195*	
	4	Bleaching properties of SO_2.	To carry out experiments to determine bleaching properties of SO_2.	Discuss the observations made above. Write corresponding equations.		K.L.B .BK III *P. 194* *Longhorn* *Book III* *PP 263-4*	
	5	Oxidizing action of SO_2.	To explain Oxidizing action of SO_2.	Q/A: review redox reactions. Teacher demonstration: - Lowering magnesium into a jar of SO_2; effect of SO_2 on hydrogen sulphide. Discuss observations. Write equations for the reactions.	Burning magnesium. Hydrogen sulphide.	K.L.B. BK III *PP. 198-199* *Longhorn* *Book III* *PP 266-7*	
3	1	Sulphate and sulphite ions. Uses of SO_2.	To carry out tests for Sulphate and sulphite ions. State uses of SO_2.	Class experiments. Make deductions from the observations made. Write (ionic) equations for the reactions. Teacher elucidates uses of SO_2.	Sodium sulphate Barium chloride Barium nitrate.	K.L.B. BK III *P. 200* *Longhorn* *Book III* *PP 268-9*	
	2	Sulphuric acid. Contact process of manufacture.	To identify raw materials for manufacture of sulphuric acid. To describe the contact process.	Discussion using schematic flow charts. Writing equations.	Chart-schematic Flow charts.	K.L.B. BK III *PP.201-203* *Longhorn* *Book III* *PP 275-6*	
	3	Properties of conc. H_2SO_4.	Investigate properties of conc. H_2SO_4.	Class / group expts on worksheets. Enter results in a table.		K.L.B.BK III *PP 203-204* *Longhorn* *Book III* *PP 274-5*	

	4	Properties of conc. H_2SO_4.	Describe properties of conc. H_2SO_4.	Discuss above observations. Write relevant equations.		K.L.B. BK III *P. 204*	
	5	Physical properties of sulphuric acid.	To dilute conc. sulphuric acid. State physical properties of sulphuric acid.	Teacher demonstration – diluting conc. sulphuric acid. Discuss use of conc. sulphuric acid as a drying and dehydrating agent.	Conc. sulphuric acid.	K.L.B. BK III *P. 205* *Longhorn Book III PP 274-5*	
4	1	Chemical properties of Sulphuric acid.	To write equations to show that conc. sulphuric acid is a drying and dehydrating agent. To describe reactions of dilute H_2SO_4 with metals.	Discussion and explanations. Group expts. – reaction of metals with dilute H_2SO_4, make observations and relevant deductions; writing corresponding equations.	Magnesium, zinc, copper metals.	K.L.B. BK III *P. 206* *Longhorn Book III PP 276-8*	
	2	Dilute H_2SO_4, carbonates and hydrogen carbonates.	To investigate reaction of dilute H_2SO_4 with carbonates and hydrogen carbonates.	Class expts. Making tabulated observations.		K.L.B. BK III *P. 208* *Longhorn Book III PP 279-80*	
	3	Dilute H_2SO_4, carbonates and hydrogen carbonates.	To describe reaction of dilute H_2SO_4 with carbonates and hydrogen carbonates.	Discussion, writing relevant equations.		K.L.B. BK III *P. 208*	
	4	Dilute H_2SO_4, and metal oxides and hydroxides.	To investigate reaction of dilute H_2SO_4 with metal oxides and hydroxides.	Class expts. Observing colour changes.	Oxides of magnesium, zinc, copper. NaOH Solution.	K.L.B. BK III *P. 210* *Longhorn Book III PP 287-8*	
5	1	Dilute H_2SO_4 and metal oxides & hydroxides.	To explain reactions of dilute H_2SO_4 with metal oxides and hydroxides.	Discussion, writing relevant chemical equations.		K.L.B. BK III *P. 211*	

	2	Hydrogen sulphide. Preparation of the gas. Reaction of the gas with oxygen.	To describe preparation of hydrogen sulphide. To state properties of the gas.	Theoretical / descriptive approach. Writing corresponding equations. Discuss physical properties of the gas and reaction of the gas with oxygen.		K.L.B. BK III *P. 210* *Longhorn Book III PP 289-90*	
	3	Reaction of the gas with water. Reducing properties of the gas.	To write equations for reaction of the gas with water. To demonstrate reducing properties of the gas.	Writing chemical equations for the reactions.		K.L.B. BK III *P. 212.* *Longhorn Book III PP 291-2*	
	4	Sulphur and its effects on the environment.	To explain environmental pollution caused by sulphur and its compounds.	Discussion and explanation.		K.L.B. BK III *P. 214* *Longhorn Book PP 293-5*	
	5	**CHLORINE & ITS COMPOUNDS** Lab. preparation of chlorine gas. Physical properties of chlorine.	Describe laboratory preparation of chlorine gas. State physical properties of chlorine.	Teacher demonstration – gas prep. tests on the gas. Q/A: Relate the properties to the method of collection of the gas. Write equations for the reaction leading to formation of chlorine.	Conc. HCl, Manganese (IV) oxide.	K.L.B.BK III *P. 219-220* *Longhorn Book III PP 298-9*	
6	1	Chemical properties of chlorine – reaction with water.	To investigate and explain reaction of chlorine with water.	Teacher demonstration: Writing chemical equations.	Moist blue litmus papers.	K.L.B.BK III *P. 222* *Longhorn Book III PP 301-2*	
	2-3	Chemical properties of chlorine - Reaction with metals - Reaction with non-metals. - Oxidizing properties of chlorine.	To investigate and explain reaction of chlorine with metals / non-metals. To investigate and explain reaction of chlorine with reducing a gents.	Teacher demonstration: Discussion. Writing chemical equations. Group experiments. Discuss and explain observations made. Write corresponding chemical equations.	Expt. Worksheets	K.L.B.BK III *PP. 224 -227* *Longhorn Book III PP 303-338*	

	4-5	Chlorine and alkalis. Test for chlorides. Uses of chlorine gas.	To investigate and explain reaction of chlorine with alkalis. To carry out tests for chlorides. To state uses of chlorine.	Teacher demonstration: Bubbling chlorine with dilute cold / hot NaOH solution. Make observations and account for them. Class expts. Discuss observations, results. Write chemical equations for the reactions. Teacher elucidates uses of chlorine.	Cold / hot NaOH solutions. Expt. Worksheets. Zinc chloride, litmus paper, conc. Sulphuric acid.	K.L.B.BK III *P. 228-231* *Longhorn Book III PP 313-4*	
7	1	Hydrogen chloride gas. Lab. prep. Physical properties.	To describe Lab. prep of hydrogen chloride gas. To investigate and state physical properties of hydrogen chloride gas.	Teacher demonstration. Carry out tests on the gas and deduce the properties of the gas.	Sodium chloride crystals, conc H_2SO_4	K.L.B.BK III *P. 232* *Longhorn Book III PP 323-4*	
	2	Aqueous hydrogen chloride.	To prepare aqueous hydrogen chloride.	Class experiment leading to deduction of chemical properties of hydrogen chloride gas.	Distilled water.	K.L.B.BK III *P. 234*	
	3	Further chemical properties of hydrogen chloride gas.	To determine chemical properties of hydrogen chloride gas. To carry out confirmatory test for hydrogen chloride gas.	Class experiment leading to deduction of further chemical properties of hydrogen chloride gas / confirmatory test for hydrogen chloride gas.	Ammonia solution.	K.L.B. BK III *PP. 235 -223* *Longhorn Book III PP 327-331*	
	4-5	Large-scale production of hydrochloric acid. Uses of hydrochloric acid. Effects of hydrochloric acid on the environment	Identify raw materials for manufacture of hydrochloric acid in large scale. Describe the manufacturing process. To state uses of hydrochloric acid. To explain effects of hydrochloric acid on the environment.	Discussion and giving relevant equations. Brief discussion.		K.L.B.BK III *P. 237* *Longhorn Book III P 330-338*	
8-9	1-5	**END OF TERM EXAMS AND CLOSURE OF SCHOOLS**					