

# Lesson Plan

Name of the Faculty                      miss binny gaba  
 Discipline                                    : Medical Lab Technology  
 Year    : 1<sup>st</sup> Year  
 Subject                                        : Basic chemistry  
 Lesson Plan                                 :

Work load (lecture/practical) per week (in hours) : Lectures-02, practicals-02

Week	Theory		Practical	
	Lecture day	Topic(including assignment test)	Practical Day (1 lab=2 hours)	Topic
1st	1 <sup>st</sup>	Introduction to the whole syllabus of Basic Chemistry	1 <sup>st</sup> & 2 <sup>nd</sup>	Volumetric analysis and study of apparatus used therein. Simple problems on volumetric analysis equation
	2 <sup>nd</sup>	Basic Concepts of Chemistry Definition of chemistry and its importance		
2nd	3rd	S.I. Units of pressure, volume, density, specific gravity, surface tension and viscosity	3 <sup>rd</sup> & 4 <sup>th</sup>	Preparation of standard solution of oxalic acid or potassium dichromate
	4 <sup>th</sup>	Matter, element, compound and mixtures, atoms, molecules, ions, symbols and formulae (recapitulation only)		
3rd	5 <sup>th</sup>	symbols and formulae (recapitulation only)	5 <sup>th</sup> & 6 <sup>th</sup>	Determine the strength of solution of HCl with the help of a solution of NaOH and an intermediate solution of standard oxalic acid
	6 <sup>th</sup>	Writing chemical formulae of simple chemical compounds		

4th	7 <sup>th</sup>	calculation of percentage composition of chemical compounds	7 <sup>th</sup> & 8 <sup>th</sup>	Estimation of total dissolved solids (TDS) in water sample gravimetrically
	8 <sup>th</sup>	Chemical equations, thermo-chemical equations		
5th	9 <sup>th</sup>	balancing of chemical equations by HIT and TRIAL method	9 <sup>th</sup> & 10 <sup>th</sup>	Estimation of total alkalinity of water volumetrically
	10 <sup>th</sup>	Assignment 1-Atomic Structure and Chemical Bonding , Introduction to atom and its constituent particles		
6th	11 <sup>th</sup>	Dalton's atomic theory, Rutherford's and Bohr's model of atom	11 <sup>th</sup> & 12 <sup>th</sup>	viva
	12 <sup>th</sup>	Atomic number, mass number, isotopes, isobars and isotones		
7th	13 <sup>th</sup>	Concept of atomic orbitals, shapes of s and p- orbitals, quantum numbers	13 <sup>th</sup> & 14 <sup>th</sup>	Determine the pH of given sample using pH meter
	14 <sup>th</sup>	Aufbau principle, Pauli's exclusion principle		
8th	15 <sup>th</sup>	Hund's rule and electronic configuration of elements (upto Z=30)	15 <sup>th</sup> & 16 <sup>th</sup>	Determine the percentage purity of commercial sample like blue vitriol, 12.5 g. of which have been dissolved per litre. Given M/20 Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
	16 <sup>th</sup>	Chemical bond, types of chemical bonding: ionic and covalent		
9th	17 <sup>th</sup>	Sources of water, Types of water based on dissolved salts.	17 <sup>th</sup> &18 <sup>th</sup>	viva

	18 <sup>th</sup>	Hard water, soft water , Units to measure water hardness in ppm simple numericals, degree Clark & degree French		
10th	19 <sup>th</sup>	Disadvantages of use of hard water in domestic and industrial applications	19th&20th	Determination of solubility of a solid at room temperature
	20 <sup>th</sup>	Methods to remove water hardness by , Ion exchange process , Lime-soda process		
11th	21 <sup>st</sup>	Reverse Osmosis method 3.5 Quality criteria of drinking water as per BIS		
	22 <sup>nd</sup>	Concept of homogenous solution, brief introduction of the terms (i) Ionization (ii) Acidity (iii) Basicity	21 <sup>st</sup> &22nd	To verify the first law of electrolysis (electrolysis of copper sulphate solution using copper electrode
12th	23 <sup>rd</sup>	equivalent weight and gram equivalent weight with suitable examples 4.2 Strength of a solution (i) Normality (ii) Molarity	23 <sup>rd</sup> &24th	VIVA
	24 <sup>th</sup>	Molality as applied in relation to a solution. Definition of pH		
13th	25 <sup>th</sup>	simple numericals and different industrial applications of pH. Buffer solution and applications of buffer.	25 <sup>th</sup> &26th	Iodometric titration
	26 <sup>th</sup>	Electronic concept of oxidation and reduction 5.2 Definition of the terms: Electrolytes, Non -electrolytes		

14th	27 <sup>th</sup>	Faraday's Laws of Electrolysis and simple numericals Different industrial applications of 'Electrolysis	27 <sup>th</sup> & 28th	Oxidation reduction titration
	28 <sup>th</sup>	Applications of redox-reactions in battery technology such as (i) Dry cell (ii) lead acid battery and (iii) Ni-Cd battery		
15th	29 <sup>th</sup>	Brief introduction to Environmental Chemistry and Pollution	29 <sup>th</sup> & 30th	viva
	30 <sup>th</sup>	Causes and effects of air, water and soil pollutions		
16th	31 <sup>st</sup>	Role of chemistry in controlling air, water and soil pollutions	31 <sup>st</sup> & 32nd	Acid-base titrations
	32 <sup>nd</sup>	General idea of ozone depletion, global warming		
17th	33 <sup>rd</sup>	General idea of ozone depletion, global warming	33 <sup>rd</sup> & 34th	Estimation of carbohydrates by benedicts methods
	34 <sup>th</sup>	introduction and importance of organic compounds, comparison of organic and inorganic compounds		
18th	35 <sup>th</sup>	Properties of carbon and hydrogen	35 <sup>th</sup> & 36th	VIVA
	36 <sup>th</sup>	Properties of carbon and hydrogen		
19th	37 <sup>th</sup>	IUPAC nomenclature- Hydrocarbons, Alcohols	37 <sup>th</sup> & 38th	Estimation of proteins by acetic acid

	38 <sup>th</sup>	IUPAC- Ethers,Aldehydes and ketones		
20th	39 <sup>th</sup>	IUPAC-carboxylic acids and revision	39 <sup>th</sup> &40th	VIVA
	40 <sup>th</sup>	preparation ,properties and uses of saturated hydrocarbons		
21st	41 <sup>st</sup>	Preparations,properti es and uses of unsaturated hydrocarbons	41 <sup>st</sup> &42nd	Revision of experiments
	42 <sup>nd</sup>	Uses of saturated & unsaturated hydrocarbons		
22nd	43th	Sources of hydrocarbons	43 <sup>rd</sup> &44th	VIVA
	44 <sup>th</sup>	Preparation ,properties and uses of halogen derivatives of hydrocarbons		
23rd	45 <sup>th</sup>	Introduction,classific ation,preparation and properties ,uses of Methyl alcohol	45 <sup>th</sup> &46th	Estimation of proteins by salphosalicyclic acid
	46th	Introduction,classific ation,preparation and properties ,uses of Ethyl alcohol		
24th	47th	Introduction,classific ation,preparation and properties ,uses of glycerol	47 <sup>th</sup> &48th	Estimation of lipids by direct method
	48th	Introduction ,classification,prepar ation and properties ,uses of Diethyl Ether,methanol,ethan al		

25th	49th	Amines-structure of amines groups- primary,secondary,tertiary	49 <sup>th</sup> &50th	Acid base experiment doubt
	50th	Important methods,preparation and properties of Amines		
26th	51th	Introduction,classific ation,preparation,pro perties ,uses of Methanoic acid,ethanoic acid	51 <sup>st</sup> &52nd	Revision of experiments
	52th	carbohydrates- definition,compositio n,classification		
27th	53th	monosaccharides,dis accharides,polysacch arides	53 <sup>rd</sup> &54th	Titrations overview
	54th	Lipids- definition,classificati on		
28th	55th	Introduction to fatty acids,phospholipids,tr iglycerides	55 <sup>th</sup> &56th	Viva voice
	56th	Cholesterol and clinical importance of lipids		
29th	57th	Proteins- classification,compo sition,molecular,struc ture,properties of amines ,Clinical importance of proteins	57 <sup>th</sup> &58th	Doubt session
	58th	enzymes- definition,classificati on,chemical nature,factors affecting,clinical importance		

30th	59th	Doubt class	59 <sup>th</sup> &60th	Viva voice
	60th	Revision		