

SARDAR PATEL UNIVERSITY**Programme: B.Sc (Chemistry)****Semester: IV****Syllabus with effect from: November/December-2012**

Paper Code: US04CCHE02	Total Credit: 3
Title Of Paper: Applied Chemistry	

Unit	Description in detail	Weighting (%)
I	Electromagnetic Spectrum: Absorption Spectra Introduction of U. V. Absorption Spectroscopy Visible and UV spectroscopy Presentation (Sketching) of UV spectra of Benzene, 2,5-dimethyl-2,4-hexadiene and aniline. Woodward-Fischer rules and application for calculating absorption maxima for the following molecules: 1. Myrcene, 2. 1,3-pentadiene, 3. Carvone, 4. Vitamin- A ₁ 5. Crotonaldehyde, 6. 2,4-hexadiene I R Absorption spectroscopy Molecular Vibration, Application of I R Spectroscopy, (Absorption of common functional groups) to Aniline, Benzoic acid, nitrobenzene, benzamide, acetamide, acetone, benzaldehyde, phenyl acetylene, cynobenzene, acetone, styrene, phenol, ethanol, acetic acid and acrolein. Basic Text & Reference Books :- <ul style="list-style-type: none">➤ Application of absorption spectroscopy of organic compounds by John R. Dyer.➤ Introduction to organic chemistry by Gurdeep R. Chatwal.	
II	Vitamins Introduction, history and nomenclature, classification, synthesis of vitamins by intestinal bacteria, Fat and water soluble vitamins. Vitamin-A and its chemistry, absorption, transport and metabolization, colour vision, other biological functions and deficiency of Vitamin-A. Vitamin-D: chemistry and biochemical functions of Vitamin-D, Vitamin-D is a hormone and not a vitamin, dietary sources and deficiency symptoms. Vitamin-E: chemistry and biochemical functions of Vitamin-E, dietary sources and deficiency symptoms. Vitamin-C: chemistry and biochemical functions of Vitamin-C, dietary sources and deficiency symptoms, biomedical/clinical concepts. Basic Text & Reference Books :- <ul style="list-style-type: none">➤ Biochemistry by U. Satyanarayan and U. Chakrapani➤ Fundamentals of biochemistry by Dr. A.C. Deb.	
III	Fertilizers Plant nutrients and their functions, Micronutrients, Types of Fertilizers, Need of Fertilizers, Essential, Requirements, Fertility of the Soil, pH Value of the Soil, Classification of Fertilizer, Direct and Mixed Fertilizers, Source of Fertilizers, Natural Organic Fertilizers, Granulations, Bulk Blending, Natural Inorganic Fertilizers, Artificial Fertilizers, Nomenclature in Fertilizer Industry, Nitrogenous Fertilizers, Ammonium Nitrate, Important Points, Ammonium Sulfate, Ammonium Sulfate from gypsum or anhydride, Action of Ammonium	



	<p>Sulfate as Fertilizer, Urea, Raw Materials, Manufacture, Condition for a Good Yield, Important Points, Action of Urea as Fertilizer, Calcium Cyanamide, Action of CaCN_2 as Fertilizer, Calcium Ammonium Nitrate, Sodium Nitrate, Ammonium Chloride, Organic Materials, Controlled Release Nitrogen Solution, Phosphate Fertilizer, Phosphate Rock, Normal Super Phosphate, Modification in Manufacturing Equipment, Properties, Triple Super Phosphate, Important Points, Ammonium Phosphate. Phosphates, Potassium Fertilizer, NPK Fertilizer, Important Fertilizers.</p>	
IV	<p>Cement Industry Introduction and types of cement, High alumina cement, Slag cement, Acid resisting cement, Super sulphate cement, White and coloured cement, Sorel's cement, Roman cement, Pozzolan cement, Blended portland cement, Types of Portland cement, cementing materials, Raw materials, Cement rock beneficiation, Manufacture, Reactions in the kiln, Mixing of additives to the cement, Setting of cement, Function of compounds, Properties of cement, Indian standard institute specifications, Testing, Uses, Physicochemical processes occurring in thermal treatment of raw cement mixture, Heat requirement, Definitions, Rotary kilns for making cement clinker, Fuel burning devices, Clinker coolers, Factors affecting quality, economy in cement industry, Mortars and concrete, Curing and decay of concrete, Corrosion of concrete or cement stone, Gypsum, Plaster of Paris, Lime and its manufacture, Properties of lime, Setting and hardening of lime.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Industrial Chemistry, (9th Edition), B.K.Sharma. ➤ A Textbook of Engineering Chemistry by M. M. Uppal. 	

