

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Biomedical Science)
Semester: I
Syllabus with Effect from: June - 2014

Paper Code: PT01CBMC05	Total Credit: 4
Title of Paper: Practical in Physical, Chemical & Biological Sciences	

Unit	Description in Detail	Weightage (%)
Chemical Science		
	To determine the percentage of two optically active substances in a given Solution polarimetrically.	
	Determination of dissociation constant, Ka for aspirin by pH metry.	
	To determine the rate constant of hydrolysis of methyl acetate catalyzed by an acid, and also the energy of activation.	
	Synthesis of o- and p-nitrophenol from phenol.	
	Separation of o- and p-nitrophenol by steam distillation method.	
	Pinacol-Pinacolone re-arrangement	
	Emulsion polymerization of methyl methacrylate using free radical initiator	
	Solvent-Free Cannizzaro Reaction involving grinding of liquid 2-chlorobenzaldehyde with potassium hydroxide	
	Preparation of Ni-DMG complex and determination of Ni ²⁺ by gravimetric method.	
	Preparation of Nickel Ammonium sulphate and determine its %age purity by estimating Nickel volumetrically.	
Physical Science		
	Electron- diffraction: Analysis of electron diffraction pattern and determination of the Inter-planar distance of the crystal.	
	Phase Angle measurement by Cathode Ray Oscilloscope (CRO) and then to determine the unknown Capacitance/ Resistance/ Operating Frequency of the circuit.	
	Determination of the Energy Bandgap (Eg) of a Semiconductor by studying the reverse bias characteristics of diode at different temperatures.	
	Ultrasonic Interferometer.	
	Geiger Muller (G. M.) Counter: To study the GM Characteristic to determine the operating voltage of the counter and then to study the absorption of beta rays through metals.	
	Simulation of radio activity: To determine the half-life of a radioactive material.	
	Logic Gates: Basic Logic gates and its applications as parity checker, Grey to BCD code converter, Half adder etc.	
	Dissociation Energy of Iodine (I ₂) Molecules: Estimation of the dissociation energy of I ₂ molecule by studying its vibrational spectra.	
	Laser beam Characteristics: To determine the basic parameters of a laser beam.	
Biological Science		
	Determination of λ_{max} of a given dye (Beer's and Lambert's law).	
	Measurement of partition coefficient index.	



	Amino acid separation by Thin Layer Chromatography.	
	Protein estimation by Folin-Lowery Methodology.	
	Glucose estimation by DNS method.	
	Glucose estimation by GOD-POD (enzymatic method).	
	Mitochondrial staining.	
	Study of cell division (Mitosis).	
	DNA estimation by DPA method.	
	RNA estimation by orcinol method	

