GUJARAT UNIVERSITY
Syllabus for First Year B. Sc.: Semester - I

PHYSICS Practicals : PHY-102

Group – A:

1. **Newton's Ring**
   To find the wave length of light of given monochromatic source
   To find the radius of curvature of given lens.
2. **Cauchy's Constant**
   To determine Cauchy's constant A and B using given formula and to find the wavelength of unknown line of a mercury spectrum. To determine Cauchy's constant A and B graphically and to find the wavelength of unknown line of a mercury spectrum.
3. **Melde's Experiment.**
   (i) To prove P/L constant. (ii) To prove T/l^2 constant
4. **Resonator**
   To test the accuracy of relation $n^2 (V + Kv) =$ constant and to determine the frequency of unknown fork.
5. **Optical Lever**
   To determine the flatness and refractive index of glass plate and radius of curvature of lenses by optical lever.
6. **To Determine Wave length of LASER light**
7. **Diagonalization of given matrix (2x2). Evaluate trace of a matrix.**

Group – B:

1. **Value of capacitance**
   For given two capacitors determine the value of capacitance for each of them. AND (i) by connecting them in series. (ii) by connecting them parallel.
2. **Value of inductance**
   For given two inductors determine the value of inductance for each of them and (i) by connecting them in series (ii) by connecting them parallel.
3. **Study of Transformer**
   To determine (i) turn ratio (ii) percentage efficiency (iii) energy loss due to copper, for a given transformer.
4. **Decay Constant**
   To verify the exponential law for the decay of a charged capacitor and determine the decay constant of the capacitor.
5. **Logic Gates (AND, OR, NOT) (Using discrete components)**
   Verification of truth tables and giving understanding of voltage level for '0'and '1'level.
6. **Half-Wave Rectifier**
   Obtain load characteristic and %regulation for Full-wave rectifier with-out filter circuit and by using capacitor filter circuit. Determine ripple factor for Full wave rectifier without filter only.
7. **Series Resonance**
   To determine the frequency of a.c. emf by series resonance circuit varying capacitor.

GUJARAT UNIVERSITY
Syllabus for First Year B. Sc.: Semester - II

PHYSICS Practicals: P – 104

Group – A:

1. **Stefan Constant**
   To verify the Stefan Boltzman's fourth power law by using dc power source.
2. **Radioactive decay**
   Simulation of Nuclear Radioactive decay using Calculator.
3. **'g' by Bar pendulum**
   To obtain the value of 'g' by bar pendulum.
4. **Deflection Magnetometer**
   To determine the magnetic moment (M) of given bar magnate using deflection magnetometer in Gauss A and B position.
5. **Thermal expansion coefficient of metal and semiconductor**
6. **Activation energy of a semiconductor.**
7. **Universal Logic Gates NAND, NOR (Using discrete components)**
   Verification of truth tables and giving understanding of voltage level for '0'and '1'level.

Group – B:

1. **LDR Characteristics**
   Obtain IV characteristics of given LDR and calculate its resistance (for at least three different light levels).
2. **Projection Method**
   To find the value of low resistance by the method of projection of potential.
3. **Full-wave Rectifier**
   Obtain load characteristic and %regulation for Full-wave rectifier with-out filter circuit and by using capacitor filter circuit. Determine ripple factor for Full wave rectifier without filter only.
4. **Bridge Rectifier**
   Obtain load characteristic and regulation for Bridge rectifier without using filter circuit and by using capacitor filter circuit. Obtain ripple factor without filter circuit.
5. **Owen's Bridge**
   To find the value of an inductance of an unknown inductor by using Owen's bridge circuit.
6. **I-V Diode characteristics of a PN-junction diode and its load line analysis.**
7. **Parallel Resonance**
   To determine the frequency of a.c. emf by series resonance circuit by varying capacitor.