

PRACTICALS

Work Load: Four hours laboratory work per week.

Examination Duration : Four Hours

Minimum Experiments: Total sixteen taking eight from each section.

The colleges are free to set new experiments of equivalent standard. This should be intimated and approved by the Convener, Board of Studies before the start of academic session. It is binding on the college to have experimental set up of at least sixteen experiments listed below (8 from each section. In case number of experiment performed by the students is less than sixteen, his marks shall be scaled down in final examination on pro rate basis. For example, if he has performed fourteen experiments the marks shall be multiplied by fourteen and divided by sixteen. The number of experiments performed shall be verified from practical record. Laboratory examination paper will be set by the external examiner by making pairs of

experiments taking one from each section out of sixteen or more experiments available at the center. Different combinations shall be given for different batch.

Marking Scheme:

Two Experiments	For Regular	For Non-Collegiate
Record	15 marks each	17 marks each
Viva-voice	10	-
(For Non-collegiate students:	10	16

Minimum Compulsory Lab training Hours – 21 Hours) *Days*
42 hours

Section – A

- Determination of Planck's constant by photo cell using optical filters.
- Determination of Planck's constant using solar cell.
- Determination of Stefan's constant (Black body method).
- Study of the temperature dependence of resistance of a semi-conductor (four probe method).
- Study of Iodine spectrum with the help of grating and spectrometer and ordinary bulb light.
- Study of characteristics of GM counter and verification of inverse square law for the same strength of a radioactive source.
- Study of β -absorption in AL foil using GM Counter.
- To find the magnetic susceptibility of paramagnetic solution using Quinck's method. Also find the ionic molecular susceptibility of the ion and magnetic moment of the ion in terms of Bohr magneton.
- Determination of coefficient of rigidity as a function of temperature using torsional oscillator (resonance method).
- Study of polarization by reflection from a glass plate with the help of Nichol's Prism and photo cell and verification of Brewster law and law of Malus.
- e/m measurement by helical Method.
- Measurement of magnetic field using ballistic galvanometers and search coil. Study of variation of magnetic field of an electromagnet with current.
- Measurement of electric charge by Millikan's oil drop method.

Section – B

- Study of R-C transmission line at 50 Hz
- Study of L-C transmission line
 - At fixed frequency.
 - At variable frequency.
- Study of resonance in an LCR circuit (using air core inductance and damping by metal plate).
 - At fixed frequency by varying C, and
 - By varying frequency.
- Study of the characteristics of junction diode & Zener diode.
- Study of
 - Recovery time of junction diode and point contact diode.
 - Recovery time as a function of frequency of operation and switching current.
- To design Zener regulated power supply and study the regulation with various loads.

7. To study the characteristics of a field effect transistor (FET) and design/study amplifier of finite gain.
8. To study the frequency response of a transistor amplifier and obtain the input and output impedance (frequency response with change of component of R and C).
9. To design and study of an R-C phase shift oscillator and measure output impedance (frequency response with change of component of R and C).
10. To study a voltage multiplier circuit of generate high voltage D.C. from A.C.
11. Using discrete components, study OR, AND, NOT logic gates, compare with TTL integrated circuits (I.C's).
12. Application of operational amplifier (OP-AMP) AS : Minimum two of the following exercises- (a) Buffer (for accurate voltage measurement) (b) Inverting amplifier (c) Non inverting amplifier.