IVESTY

GURU KRIPA ENTERPRISES

AN ISO 9001:2015 & NSIC CERTIFIED COMPANY

Sur No - 668, Plot No - 268 , Fatevadi, Sarkhej , Ahmedabad,Gujarat - 382210

Email: info@gkelabs.com,www.gkelabs.com,Mobile::9106316361

GeM Government e Marketplace

GEM PORTAL REGISTERED

IV-E325 Balmer Series And Rydberg Constant

Principle and Working:

- Hydrogen atoms in a discharge lamp emit a series of lines in the visible part of the spectrum. This series is called the Balmer series which continues into the ultraviolet range. Rydberg generalized the Balmer's formula in terms of wave numbers to describe wavelengths of spectral lines of many chemical elements. For hydrogen the Balmer's formula becomes a special case of Rydberg's formula and is given by
- $1/\lambda=R(1/2^2 - 1/n^2)$ where n are integers, 3, 4, 5, ... up to infinity and R is Rydberg constant (R = 4/B where B is the Balmer's constant). In the present setup, the spectral lines of hydrogen is observed by means of diffraction grating. The wavelength of the visible lines of Balmer series of hydrogen are measured by spectrometry.

Scope Of Learning:

- To Study Hydrogen Spectrum And Determination Of Rydberg's Constant With The Help of Spectrometer Diffraction Grating and Hydrogen Discharge Tube
- To determine the wavelengths of Balmer series in the visible region from hydrogen emission.

ABOUT SPECTROMETER:

✓ Scale: Brass, Dia. 175mm.
✓ Objective: Achromatic lens, f = 178mm, Aperture 32mm
✓ Slit: German silver with knurled screw
✓ Reticle: 900 cross etched on glass
✓ Least count: 20 seconds
✓ Eyepiece: 15X, Ramsden eyepiece
✓ Vernier: 4 verniers (Telescope & Prism table)
✓ Base: 220mm dia., Aluminium Casting

REQUIRED ACCESSORIES:

Apparatus Supply:

- Spectrometer
- Grating 15000 LPI
- Spirit Level 2"
- Working Manual

Accessories (Light Source):

- Hydrogen Discharge Tube
- Power Supply (Extra High Tension)