

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.

B.Sc.Physics - END SEMESTER EXAMINATIONS - NOV'2024

SEMESTER - III

22UPHCT3006 - Optics and Spectroscopy

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Discuss about Spherical aberration briefly.
2. Explain the difference between Interference and Diffraction pattern.
3. Derive the theory of the production of elliptically and circularly polarized light.
4. Describe quantization of energy also the Regions of the spectrum with neat diagram.
5. Explain the theory of interference fringes in Newton's rings with diagram.
6. With neat sketch Explain about Rectilinear propagation of light in Fresnel diffraction.
7. Write short notes on Laurent's half shade polarimeter.
8. Discuss about Intensity of spectral lines in the spectrum and Selection Rules also derive Born Oppenheimer Approximation.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Define Eyepiece? Discuss on Huygens and Ramsden's eyepiece .
10. Derive the theory of determination of wavelength of monochromatic light and difference in wavelength between two neighbouring lines.
11. Describe Dispersive power of a grating also discuss its Resolving power briefly.
12. Differentiate Quarter wave plate and Half wave plate in detail with necessary diagram.
13. Explain about the application and analysis of functional group using FTIR spectroscopy.
