

**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. END SEMESTER EXAMINATION APRIL/NOV - 2021**

**SEMESTER - III**

**20UPHCT3006 - Optics and Spectroscopy**

<b>Total Duration : 3 Hrs</b>	<b>Total Marks : 75</b>
MCQ : 30 Mins	MCQ : 15
Descriptive : 2 Hrs.30 Mins	Descriptive : 60

Section B

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

1. Describe the Chromatic aberration in lenses.
2. Explain the combination of two prisms to produce  
(i) Dispersion without deviation and (ii) Deviation without dispersion.
3. How will you determine the refractive index of a Liquid with Newton's Rings?  
Explain experiment with theory.
4. Describe Jamin's Interferometer method of determining refractive index of gases.
5. Find the resolving power of the prism.
6. Describe the Fresnel diffraction at a straight edge.
7. Explain the construction of Nicol prism and how it can be used as analyzer and Polarizer
8. Differentiate between Fresnel and Fraunhofer diffraction.

Section C

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

9. Explain the construction and working principle of Michelson's Interferometer.
10. Discuss about Linear and circular Polarization with an example.
11. Briefly explain Fraunhofer diffraction.
12. Illustrate the types of Molecular spectra.
13. Describe the construction and use of Ramsden's eye piece and also explain Brewster's Law.