

23BPH351

**UG PROGRAM (4 YEARS HONORS) WITH SINGLE MAJOR
AT THE END OF THIRD SEMESTER
PHYSICS-OPTICS (Minor)
(w.e.f. Admitted Batch 2023-24)**

Maximum: 70 marks

Time: 3Hours

Section-A

5 x 4 = 20

Answer any Five questions.

1. Write a short note on spherical aberration.
2. Explain about cosine law.
3. Write a short note on resolving power of a telescope.
4. Explain about Malus law.
5. Write a short note on population inversion.
6. Explain about distortion.
7. Write a short note on colours of thin films.
8. State and prove Brewster's law.

Section-B

5 x 10 = 50

Answer All Questions.

9. a) Explain about coma and astigmatism.
(Or)

b) What is achromatism? Derive the condition for achromatism when two lenses are separated by a distance.

10. a) Explain about interference by a film with two non-reflecting surfaces (wedge shaped film).
(Or)

b) Explain about the determination of wavelength of monochromatic light by using Newton's ring experiment.

11. a) Explain the Fraunhofer diffraction due to single slit.
(Or)

b) Write an essay on Fresnel half-period zones with calculation of area of half-period zones.

12. a) Explain about the construction and working of Nicol prism as polariser and analyser.
(Or)

b) Write an essay on Laurent's half-shade polarimeter.

13. a) Explain about Einstein co-efficients.
(Or)

b) Write an essay on Ruby laser.