

Anjuman Islam Janjira Degree College of Science
Murud-Janjira, Raigad-402401
Affiliated to University of Mumbai
As per NEP 2020

Class: -F.Y.B.Sc.(G.S)	Subject: - Physics Major- Optics
Semester: - II	Course code: -USPH102
Exam Event: - Summer 2026 (FH)	Marks: - 30
Date: - 14/03/2026	Duration: - 1 Hours

N.B.

- 1. All questions are compulsory.**
- 2. Figures to the right indicate full marks.**
- 3. Draw neat labelled diagrams wherever necessary.**



Q: 1 A) Attempt any TWO of the following.

(10)

- 1) What is lens? List different types of lenses.
- 2) State and Explain Newton's Lens Equation.
- 3) Elaborate any two methods to reduce Spherical Aberration
- 4) What is Chromatic Aberration? Explain Axial chromatic aberration with ray diagram.

Q: 1 B) Attempt any ONE of the following.

(05)

- 1) Two thin convex lenses each of Two thin lenses of focal length 10 cm and 6 cm are place coaxially a certain distance a part. Calculate the distance between the lenses if these lenses free from an achromatic aberration and produces minimum spherical aberration.
- 2) Calculate the focal length of Plano-convex lens for which the radius of curvature of curved surface is 25 cm ($n=1.5$).

Q: 2 A) Attempt any TWO of the following.

(10)

- 1) Compare the Interference and Diffraction phenomenon
- 2) Explain Frounhoffer diffraction with necessary diagram.
- 3) Elaborate any one application of Michelson's Interferometer.
- 4) What are the different types of polarization? Explain with example.

Q: 2 B) Attempt any ONE of the following.

(05)

- 1) For a single slit of width 0.4 mm illuminated by light of wavelength 500 nm calculate the relative intensity at an angle when $\alpha = \pi/2$.
- 2) In an experiment to determine the refractive index of gas using Michelson's interferometer a shift of 150 fringes is not noted. if the wavelength of light is 5400 Å and length of tube is 20 cm. calculate the refractive index of gas.