

Rajiv Gandhi University of Health Sciences, Karnataka
I Year B.Sc. Optometry Degree Examination - 11-May-2026

Time: Three Hours

Max. Marks: 100

PHYSICAL OPTICS AND PRINCIPLES OF LIGHTING, GEOMETRIC OPTICS
SECTION B – GEOMETRIC OPTICS (50 MARKS)
(REVISED SCHEME – 4)

Q.P. CODE: 3345

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

(Note : Both QP Codes 3344 and 3345 are to be answered within total duration of 3 hours)

LONG ESSAYS (First Question Choice)

1 x 10 = 10 Marks

1. Explain briefly monochromatic aberration. How they can be eliminated?

OR

Obtain the gauss formula for refraction at a single spherical surface and hence the lens maker's formula

SHORT ESSAYS (Question No. 5 choice)

5 x 5 = 25 Marks

2. Derive mirror equation
3. Explain refraction by a prism and deduce prism formula
4. Derive refraction matrix of a lens
5. What is lateral shift? Derive its expression

OR

A convex lens of focal length 0.24 m and of refractive index 1.5 is completely in water of refractive index 1.33. find the change in focal length of the lens

6. Explain focal points and principal points of thick lenses

SHORT ANSWER (Question No. 10 choice)

5 x 3 = 15 Marks

7. State and explain laws of reflection
8. Define principal focus and radius of curvature of a lens
9. Define power of a lens. Write the formula and S.I. Unit
10. State critical angle and give the relation between refractive index and the critical angle

OR

What is the significance of velocity of light?

11. State Cartesian sign convention
