Rajiv Gandhi University of Health Sciences, Karnataka

I Year B.Sc. Optometry Degree Examination - 06-Nov-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, labelled 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. Derive the lens maker's formula
   OR
   Derive the Gaussian formula for refraction at spherical surfaces

SHORT ESSAYS (Question No. 5 choice) **5 x 5 = 25 Marks**

2. Explain the combination of prisms producing deviation without dispersion
3. Describe refraction and state the laws
4. Explain spherical aberration and astigmatism
5. With a neat sketch, explain the image formulation in a compound microscope
   OR
   A crown glass prism with a refracting angle 8^0 is combined with a flint glass prism to obtain deviation without dispersion. If the refractive indices of red and violet for crown glass are 1.514 & 1.524 and the flint glass are 1.645 & 1.665, respectively. Find the mirror formula
6. Derive the mirror formula

SHORT ANSWER (Question No. 10 choice) **5 x 3 = 15 Marks**

7. Define dispersion and mention the reason for dispersion
8. Describe the principal points of a thick lens
9. With a neat sketch, explain the virtual image formation in a convex lens
10. Derive an equation for the equivalent focal length of the combination lenses in contact
    OR
    Mention the applications of convex lens
11. Explain normal shift

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