Rajiv Gandhi University of Health Sciences, Karnataka

I Year B.Sc. Optometry Degree Examination - 12-May-2025

Time: Three Hours **Max. Marks: 100 Marks**

PHYSICAL 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. State Fermat's principle of least time. Explain the laws of refraction by applying this principle.

   Or

   Obtain the expression for equivalent focal length of two lenses kept (a) In contact (b) Separated

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

2. Deduce lens marker's formula for a thin lens.
3. What is dispersive power of a prism? Obtain the condition for combination of two thin prisms to produce dispersion without deviation.
4. Deduce the expression for focal length of a spherical mirror.
5. What are the major defects of the image formed by a convex lens?

   Or

   How is chromatic aberration minimized?
6. Write a short note on errors of refraction of eye.

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

7. What is field stop and aperture stop?
8. Define thin prism. Write the expression for deviation produced by thin prism.
9. Mention the uses of spherical mirrors.
10. State the conditions for total internal reflection.

    Or

    Depth of focus and field of view.
11. What is the significance of velocity of light?

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