Rajiv Gandhi University of Health Sciences, Karnataka

I Year B.Sc. Optometry Degree Examination - 06-Nov-2026

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

PHYSICAL AND PRINCIPLES OF LIGHTING, GEOMETRIC OPTICS
SECTION A – PHYSICAL AND PRINCIPLES OF LIGHTING (50 MARKS)
(REVISED SCHEME – 4)
Q.P. CODE: 3344

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. Define simple harmonic motion. Obtain the expressions for velocity, kinetic energy, potential energy and the total energy of a body executing simple harmonic motion.

   Or

   Deduce the expression for specific rotation using Laurent's half shade polarimeter.

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

2. State and explain Brewster's law.
3. Give the theory of Raman effect.
4. Explain Fermat's law of refraction.
5. Give Fresnel's explanation of rectilinear propagation of light.

   Or

   Write a note on construction and working of Nicol Prism.
6. Deduce the expression for Air wedge using Interference of light.

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

7. Write the applications of optical fibers.
8. State the laws of photo electric emission.
9. The refractive index of a material is 1.634. Calculate the critical angle.
10. What is LASER? Mention the applications.

    Or

    Define Rayleigh scattering.
11. What is optical activity? On what factors does it depend?

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