

**Rajiv Gandhi University of Health Sciences, Karnataka**  
**I Year B.Sc. Optometry Degree Examination - 25-Nov-2024**

**Time: Three Hours**

**Max. Marks: 100**

**PHYSICAL OPTICS AND PRINCIPLES OF LIGHTING, GEOMETRIC OPTICS**  
**SECTION A – PHYSICAL OPTICS 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. Explain the different theories of light and highlight the dual nature of light  
**OR**  
Explain production and detection of various kinds of polarized light

**SHORT ESSAYS (Question No. 5 choice)**

**5 x 5 = 25 Marks**

2. Explain diffraction at a single slit
3. Obtain the expression for fringe width in young double slit experiment
4. Explain Einstein photoelectric effect
5. What is the radius of first half period zone in a zone plate behaving like a convex lens of focal length 0.6m for light of wave length 600nm?  
**OR**  
Explain Rayleigh and Raman scattering
6. Derive the expression for velocity and acceleration of a particle executing S.H.M

**SHORT ANSWER (Question No. 10 choice)**

**5 x 3 = 15 Marks**

7. Write a note on zone plate
8. Write the conditions for constructive and destructive interference
9. Define luminous flux and candela
10. State Brewster's Law  
**OR**  
Define simple harmonic motion and write examples
11. Write the application of optical fiber

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