Rajiv Gandhi University of Health Sciences, Karnataka

I Year B.Sc. Optometry Degree Examination - 19-Dec-2022

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. With a neat diagram explain Fermat's law of reflection and refraction.

   Or

   What is interference of light? Give the theory of interference using Young's double slit experiment.

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

2. How is elliptically polarized light produced and analyzed?
3. What is optical fiber? Write the application of optical fiber.
4. A parallel beam of light of wavelength 5460A is incident at an angle of 30^0 on a plane transmission grating having 6000 linear per cm. find the highest order spectrum that can be observed.
5. Describe a He-Ne laser. Mention one use of the same.

   Or

   Derive an expression for energy of an SHM.
6. Why sky is blue in color? Explain Rayleigh scattering?

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

7. What are retardation plates? State their uses.
8. Write a note on Zone plate.
9. Define S.H.M with an example.
10. Explain Raman effect.

    Or

    What is the principle of Laser? Mention the applications of Laser.
11. What are anti-reflection coatings? Where are they used?

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