Q.P.Code 103013 **Reg.** No.:.....

First B.Sc Optometry Degree Supplementary Examinations - August 2012

PHYSICS

Time: 3 hrs Max marks :80

- Answer all questions
- Draw diagram wherever necessary

Essay: (2x15=30)

1. What is a spectrometer. Explain the method to determine the refractive index of a prism using a spectrometer.
2. Calculate the focal length of a thick convex lens of radii of curvature R1 and R2 and thickness t. Calculate the position of the principal points.

Short notes (5x5=25)

3. Outline the theory of wave front recording and reconstruction in holography. Mention some of its important applications.
4. A biconvex lens is made of glass of refractive index 1.52. If one surface has twice the radius of curvature of the other and if the focal length is 5 cm. What are the two radii.
5. What are the cardinal points of a lens system.
6. Show that the radii of Newton's dark rings are proportional to square root of natural numbers.
7. How to obtain the system matrix for a general optical system.

Answer briefly (10x2=20)

8. Define population inversion and optical pumping.
9. Describe the method of producing circularly polarized light and elliptically polarfzed light.
10. Distinguish between emission and absorption spectra.
11. Define specific rotation of an optically active substance.
12. How will you determine the optical flatness of a glass plate.
13. What is distortion and how it can be eliminated.
14. Define diffraction phenomenon of light. What are the types of diffraction.
15. Describe the Huygen's wave theory.
16. Distinguish between Rayleigh's scattering and Raman scattering.
17. Explain about the remedial measures for the astigmatism of the eye.

Fill in the blanks (5x1=5)

18. The principle of fibre optics is_____
19. Brackett series in the line spectrum lie in the region.
20. A spherical lens which is free from the defects of spherical aberration and coma is called _ _ _ _ _ _ _ _
21. Colour of soap bubble is due to phenomenon.
22. If unpolarised light of intensity 1_0 is incident on a polarizer the intensity of light transmitted through the polarizer is____

****