**Q.P.Code 103013** **Reg. No.:……**

First Year B.Sc Optometry Degree Examinations - September 2014

**PHYSICS**

**Time : 3 hrs** **Max marks : 80**

- **Answer all questions**
- **Draw diagram wherever necessary**

**Essay:** **(2x15=30)**

1. What are nodal points and nodal planes. Mention its properties. Describe the working of nodal slide.
2. What is meant by optical activity. Discuss Fresnel's explanation of optical activity.

**Short notes** **(5x5=25)**

3. What is chromatic aberration. How it can be eliminated.
4. State Huygen's principle. Establish the law of reflection at spherical surface.
5. Explain the construction and working of He- Ne laser
6. Explain the parts of spectrometer.
7. A parallel beam of sodium light is allowed to be incident normally on a plane grating having 4250 lines/cm and a second order spectral line is observed to be deviated through 300. Calculate the wave length of the spectral line.

**Answer briefly** **(10x2=20)**

8. Differentiate between interference and diffraction.
9. Paraxial region.
10. What are Newton's rings.
11. Explain the first order theory
12. Define power of a lens.
13. What is zone plate.
14. Explain the Rayleigh's scattering.
15. Show that surface tension is equal to surface energy.
16. Spatial coherence.
17. Define numerical aperture of an optical fiber.

**Fill in the blanks** **(5x1=5)**

18. Formation of colours in thin films is due to ……..
19. Holography is a technique which enables …….dimensional images to be made.
20. There is a pair of conjugate points on the axis having unit positive angular magnification. These points are called …….points.
21. The only radiation that is of nuclear origin in the electromagnetic spectrum is ……
22. The lens in the human eye is a …… lens.

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