

First Year B.Sc Optometry Degree supplementary Examinations –  
May 2016

**(2010 Scheme)**  
**PHYSICS**

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

- Answer all questions
- Draw diagram wherever necessary

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

1. Account for the colors in thin films with necessary theory. When seen by reflected light, why an excessively thin film appears to be perfectly dark. Explain why a broad source of light is needed to observe this phenomenon with suitable diagram.
2. What is optical activity. Explain Fresnel's theory of optical rotation. Explain the working of a He-Neon laser

**Shortnotes****(5x5=25)**

3. State Huygen's principle. Establish the laws of refraction using wave theory of light.
4. Explain Raman scattering.. Explain the formation of Stokes and anti-Stokes lines.
5. Show that in the case of a wedge shaped film we get straight line fringes. What are fringes of equal thickness and fringes of equal inclination..
6. Explain the formation of Newton's rings. Why is the center dark. Is it possible to make it bright.
7. What should be the minimum number of lines in a grating which will just resolve in the first order the lines whose wavelengths are 589nm and 589.6nm.

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

8. What are spherical aberration and coma and how they are corrected.
9. Explain the working of a half shade polarimeter.
10. Explain dispersion without deviation.
11. Explain the blue color of sky
12. Define lumen, luminous intensity of a source and illumination of a source.
13. Distinguish between spatial coherence and temporal coherence.
14. How will you detect circularly polarized light and unpolarised light.
15. State Malus' law and Brewste's law.
16. Explain infra-red spectrum and ultra-violet spectrum.
17. Explain the various steps involved in the construction of a hologram.

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

18. The originator of the corpuscular theory was .....
19. In a .....wave the vibrations of the particles are perpendicular to the direction of propagation of the wave.
20. The formation of interference fringes is in accordance with the law of conservation of .....
21. The diffraction pattern due to a circular aperture is .....bright and dark rings .
22. The situation in which the number of atoms in the excited state is greater than that in the lower energy level is called .....

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