

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

PHYSICS
(2010 Scheme)

Time : 3 hrs

Max marks : 80

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

Essay: (2x15=30)

1. Define resolving power of a microscope and grating. Derive an expression for the resolving power of a microscope and grating.
2. What is optical activity. Explain Fresnel's theory of optical rotation. Define specific rotation. Explain the working of a half shade polarimeter.

Short notes (5x5=25)

3. Explain colour of thin films. Derive the necessary expression.
4. Explain Raman scattering. How does it differ from Rayleigh scattering.
5. Explain the construction of a zone plate.
6. Explain the formation of Newton's rings. Derive an expression for the n^{th} dark ring.
7. What is the aperture of an objective of a telescope that can be used to just resolve stars separated by 6×10^{-6} radian. Given $\lambda = 580\text{nm}$.

Answer briefly (10x2=20)

8. Explain the colour of thin film with suitable expressions.
9. Mention four uses of lasers.
10. Explain dispersion without deviation.
11. Explain third order theory.
12. When can you say, the eye is a metropic. How does it arise.
13. Distinguish between spatial coherence and temporal coherence.
14. Distinguish between circularly polarized light and unpolarised light.
15. What is dichroism and where it is used.
16. What is chromatic aberration and how it is corrected.
17. What is holography and mention about a hologram.

Fill in the blanks (5x1=5)

18. Light rays are drawn to the wave fronts.
19. The phenomenon of is shown by transverse waves only.
20. The the value of limit of resolution, greater will be the value of resolving power of a microscope.
21. In the case of wedge shaped film we get fringes.
22. The method of reducing chromatic aberration is called