

First Year B.Sc Optometry Degree Supplementary Examinations
April 2018

Paper III – Physical & Geometrical Optics
(2016 Scheme)

Time: 3 hrs

Max marks: 80

- Answer all questions
- Draw diagram wherever necessary

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

1. What is spherical aberration, chromatic aberration and coma. Explain the different methods of removing chromatic aberrations and minimizing spherical aberrations.
2. Explain the production of plane polarized and circularly polarized light with necessary theory. How are they detected. List the various members of electromagnetic spectrum in the increase in order of frequency. Mention one application for each member.

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

3. State Huygen's principle. Establish the laws of refraction using wave theory of light.
4. Explain spherocylindrical lens notations.
5. Explain image formation in cylindrical lenses.
6. What is population inversion. Explain Einstein's theory of lasers.
7. Discuss diffraction effects produced by a circular aperture

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

8. Explain Malus law
9. What is polarizing angle and add a note on Brewster's window
10. State and explain Lambert's law.
11. What is astigmatism and how it is corrected.
12. Explain Rayleigh's scattering.
13. What are nodal planes.
14. Distinguish between linear magnification and angular magnification.
15. Define dispersive power. What is Abbe's number.
16. What are cardinal points
17. What is depth of focus and depth of field

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

18. The relation between amplitude and intensity of a wave is.....
19. The expression for the resolving power of a telescope is.....
20. The phenomenon of interference is shown by transverse waves and waves.
21. According to law the tangent of the angle of polarization for a given medium is numerically equal to the refractive index of the medium.
22. The expression for fringe width in interference of light is.....