

First Year B.Sc Optometry Degree Examinations October 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. Describe myopia, hyperopia and astigmatism with neat diagrams and explain with diagrams how these defects can be corrected.
2. Discuss Einstein's theory of laser and explain what are the three essential components of laser

Short notes

(5x5=25)

3. State Huygens' principle and using it arrive at the law of refraction.
4. Show that when the mirror is rotated through an angle θ the reflected image is rotated through an angle 2θ .
5. Obtain vergence equation for the thin lens.
6. Define cardinal points of a thick lens.
7. Prove that tangent of the angle of polarization is equal to the refractive index of the medium. Discuss two methods of producing plane polarized light

Answer briefly

(10x2=20)

8. State Rayleigh's criterion of resolution.
9. Draw a neat ray diagram of Newtonian telescope.
10. Explain the terms chromatic and spherical aberration.
11. What is field stop and entrance pupil.
12. Define circle of least confusion with reference to spherocylindrical lens
13. What is the power of the concave mirror with radius 12 cm.
14. Snell's law
15. Explain Malus's law.
16. What do you understand by dispersive power and Abbe's number
17. Describe Coherence

Fill in the blanks

(5x1=5)

18. The refractive index of a medium as the wavelength of light increases.
19. The nature of image formed by compound microscope is real and
20. Intensity of light is proportional to square of the
21. In Young's double slit experiment, fringe width.....when red light is replaced by blue light
22. The resolving power of the telescope increases if the diameter of the objective is
