**First Year B.Sc Optometry Degree Regular/Supplementary Examinations December 2023**
**Paper III – Physical & Geometrical Optics**

# (2016 Scheme)

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

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers*
- *Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers • Draw table/diagrams/flow charts wherever necessary*

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

1. How the different types of polarized light can be distinguished
2. Explain Fresnel and Fraunhofer diffraction and applied aspects of diffraction

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

3. Monochromatic aberrations and its elimination
4. Refraction at plane surface according to Fermat
5. Huygens wave theory.
6. Explain the terms first principal focus and second principal focus in a lens
7. Explain Rayleigh scattering. What is Tyndall effect?

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

8. Fermat's principle
9. Define dispersion of light
10. Define power of a lens. What is the unit of measurement
11. Dual nature of light
12. Constructive and Destructive interference of light
13. Write about rectilinear propagation of light
14. What are the applications of LASER in ophthalmology
15. Prism Deviation in prisms
16. Total Internal Reflection
17. Critical angle of Glass

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

18. The focal length of the mirror is _____ that forms an image 6.2 cm behind the mirror of an object placed at 26 cm in front of the mirror
19. The power of magnifying glasses given by _____
20. Critical angle of glass is $\Theta_1$ and that of water is $\Theta_2$. The critical angle for water and glass surface would be _____.
21. When Two waves of same amplitude add constructively, the intensity becomes _____
22. Laser diode has _____ light

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