First Year B.Sc Optometry Degree Regular/Supplementary Examinations
November 2024
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. Explain Fermat's principle and using it derive laws of refraction and reflection.
2. Discuss cause, formation and minimization of chromatic aberration.

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

3. Wavefront and its relation with curvature and vergence.

4. Linear and angular magnification.

5. Cylindrical lenses.

6. Third order aberration: distortion.

7. Inverse square law of photometry, Lambert's law.

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

8. Position of minimum deviation in prism.

9. Materials of high refractive index.

10. Paraxial approximation in optics.

11. Marginal rays and paraxial rays.

12. Types of chromatic aberration."

13. Displacement without dispersion for glass slab.

14. Field stops.

15. Vergence.

16. Transmittivity of material.

17. Nodal points and nodal plane.

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

18. Refractive index for ordinary ray is _____ than extra ordinary ray.

19. Mathematically solid angle is _____

20. Airy's disc are produced due to _____

21. Compound microscope has _____ magnification than simple microscope.

22. Abbe's number is an inverse of _____

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