

**First Year B.Sc Optometry Degree Supplementary Examinations
April 2019**

Paper III – Physical & Geometrical Optics

(2016 Scheme)

Time: 3 hrs

Max marks: 80

- Answer all questions
- Draw diagram wherever necessary

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

1. Define Gull strand's Schematic and explain power calculation of optical components
2. Describe an experiment to determine the wavelength of light using diffraction grating with necessary formula. State inverse square law of photometry. Explain Lambert's law

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

3. Describe Young's experiment. Derive an expression for the fringe width.
4. Explain the difference between fluorescence and phosphorescence.
5. Explain the defects and correction methods of astigmatism and coma
6. Define prism diopter. Derive an expression for the deviation produced by a thin prism
7. What is paraxial approximation. Obtain vergence equation

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

8. Compare crown and flint glasses.
9. State Brewster's law.
10. Explain optical pumping and population inversion.
11. Define reflection coefficient and transmission coefficient
12. Two lenses of powers +2.5 D and - 5.0 D are kept co axially separated by a distance 20 cm, calculate the equivalent power and focal length of the combination
13. What are field stops and apertures. Explain.
14. Explain the working of a simple microscope.
15. Write down the expression for the magnification of a compound microscope. What is tube length.
16. Mention the six cardinal points of system of two thin lenses.
17. Distinguish between spatial coherence and temporal coherence

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

18. Nodal points are two points on the axis of a lens system such that the relative angular magnification is
19. Distortion is an example of aberration.
20. In double refraction the ray which does not obey the laws of refraction is called ray.
21. When circularly polarized light is seen through a rotating nicol prism, there is no variation in of light.
22. In ruby laser the active laser particles are the atoms.
