Q.P. Code: 125013 **Reg. No.:……**

First Year B.Sc Optometry Degree Supplementary Examinations
March (November), 2020
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. Derive the law of refraction at concave refracting surface. Derive vergence equation.
2. Define the effective focal length of a system of two lenses in contact with each other (15 marks)

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

3. Explain the law of reflection using Huygen's wave theory.
4. Difference between crown and flint glass .Explain how it helps in reducing aberrations. (5 marks)
5. Explain the deviation produced by a thin prism. How deviation produced depends on refractive index.
6. Explain the nodal points and nodal slits.
7. Distinguish between linear magnification and angular magnification. How they are related.

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

8. What are field stops and apertures. Explain
9. State and explain Snell's law of refraction
10. Explain real and apparent depth. How they are related
11. Sketch the ray diagram of a compound microscope
12. How spherical aberration in lenses can be eliminated
13. Explain astigmatism, distortion and curvature of field
14. Explain the working of a Galliean telescope
15. What are Zernike Polynomials
16. Point out the differences between ray aberrations and wave front aberrations
17. What is circle of least confusion

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

18. Two plane mirrors are inclined at an angle 60^0. The number of images formed are……
19. Focal length of a lens is 50cm.The power of the lens is……diopter
20. The tube length of a microscope is ……
21. When object is at infinity. Image will be formed at ……
22. Number of cardinal points of a convex lens is ……

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