

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

- **Answer all questions**
- **Draw diagram wherever necessary**

Essays**(2x15=30)**

1. Find the sphero-cylindrical equivalent to the following pair of crossed cylinders:
• -400DC*30/ -700DC*60
2. Discuss on the patient selection and dispensing of progressive addition Lenses

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

3. An equi-concave lens whose focal length is -16.67cm is placed in close contact with a second lens and the focal length of the combination is found to be +20cm. If each lens is made from glass of refractive index 1.60 and the two surfaces which are in contact fit together exactly, find the radius of curvature of the other surface of the second lens.
4. Describe oblique astigmatism and distortion
5. Mention briefly on the following lens quality inspection techniques:
•Transmission •Reflection •Shadowing
6. Name the four common difficulties while taking binocular distance PD and mention the solution for any one of them.
7. Resolve 2Δ BU and BI at 1600 into vertical and horizontal components for the right eye by:
•Graphical solution •Mathematical Calculation

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

8. Explain the boxing system frame measurement.
9. Differentiate between lenticular and aspheric lenses.
10. What is the composition of barium crown glass. Mention its abbe value and specific gravity.
11. Define segment depth and segment size.
12. Describe with diagrams ghost image 1 and 2.
13. What are best form lenses. Why meniscus lenses are used nowadays over the flat forms of lenses as a routine.
14. What is thickness difference of a prism. Calculate the thickness difference of 6Δ prism made in spectacle crown glass, 50 mm in diameter.
15. Describe briefly on mechanical sign convention with the help of a neat diagram.
16. What are differential prismatic effects. Why it is necessary to keep vertically low levels of decentration.
17. What is chromatic aberration. List its types.

(P.T.O)

One word answer

(5x1 = 5)

18. Name any of the temporary markings in a progressive addition lenses.
19. What is the refractive index of polycarbonate lenses.
20. What is one of the factors on which the size of the image produced by an isekonic lens depends.
21. True or false. An antireflection coating will make a lightly tinted lens perform better at night than it otherwise would with the tint but with no antireflection coating.
22. Divide the 2 ▲ BO on right eye before both the eyes.
