


RAY OPTICS & OPTICAL INSTRUMENTS

Test Paper-III

MAX MARKS: 30

TIME: 90Mts

Answer the following

Sl. No.	QUESTION	ANSWER PAGE	MARKS
1	Define Magnification of a lens. Compare the magnification of a convex lens with that of a concave lens.	Page 327	2
2	A magician during a show makes a glass lens with $n = 1.47$ disappear in a trough of liquid. What will be the nature of the lens inside the liquid? What is the refractive index of the liquid? Could the liquid be water?	Page 327	1+1+1
3	Define power of a lens. What is the physical significance of it? Give the formula for finding the power of a lens and the SI unit of measurement of it.	Page 328	1+1+ 1/2 +1/2
4	A converging lens of refractive index 1.5 is kept in a liquid medium having same refractive index. What would be the focal length of the lens in this medium? (Hint: Refraction of light depends upon the passage of light from one medium to another)		2
5	If $f = 0.5\text{m}$ for a glass lens, what is the power of the lens? (ii) The radii of curvature of the faces of a double convex lens are 10cm and 15 cm. Its focal length is 12cm. What is the refractive index of glass? (iii) A convex lens has 20 cm focal length in air. What is the focal length in water? (Refractive index of air-water=1.33. refractive index of air-glass=1.	Page:328	3
6	What is the relation between critical angle and refractive index of a material? Does critical angle depend on the colour of light? Explain	Page :320	3
7	Show that $P = P_1 + P_2 + P_3 + P_4 + \dots$ for combination of thin lenses in contact	Page:329	3
8	What is photometry? Define the term related to photometry that can be measured directly. Also give the formula for finding the same.	Page:324	3
9	Draw the ray diagram showing the formation of image in case of a convex & concave lens for virtual image & compare them(refer to class X- science NCERT Text Book)		3
10	 Give the principle involved in the figure. What is the purpose of magnifying glass in this figure?		2

11 Draw the ray diagram showing the

i. Apparent depth for

Page:317&318

2+1

a. Normal and

b. Oblique viewing

ii. Lateral shift of a ray refracted through a parallel- sided slab.

ZIET BBSR