

# RAY OPTICS & OPTICAL INSTRUMENTS

## Test Paper-II

**MAX MARKS: 30**

**TIME: 90Mts**

Sl. No.	QUESTION	ANSWER PAGE	MARKS
1	Define Total internal reflection. Give the conditions that are necessary for total internal reflection to take place.	Page319	1+2
2	Write the relation between the refractive index and critical angle for a pair of optical media.	Page320	1
3	Draw the diagrams showing the phenomenon of total internal reflection in the following. a. Refraction due to glass of beaker b. Refraction through a glass test tube	Page:321	2
4	Explain the principle and working of an optical fibre.	Page 322	3
5	Explain the formation of Mirage. Also state the principle on which the formation of mirage takes place.	Page321	2+1
6	What is the main requirement in fabricating optical fibre and how it can be achieved?	Page323	1+1
7	Show by drawing ray diagram how total reflecting prisms can be used to bend rays by $90^\circ$ and $180^\circ$ .	Page322	1+1
8	Derive an expression for finding the refraction at a spherical surface.	Page 323	1+2
9	Light from a point source in air falls on a spherical glass surface ( $n=1.5$ and radius of curvature = 20cm). The distance of the light source from the glass surface is 100cm. At what position the image is formed?	Page325	2
10	Derive Lens maker's formula.	Page326	3
11	Draw a ray diagram showing the image formation in case of a concave lens. Also derive the lens formula for the same.	Page327	1+2
12	(i) Why does the sun appear reddish at sunset or sunrise? (ii) For which colour, the refractive index of prism material is maximum and minimum?	Page318	2 +1