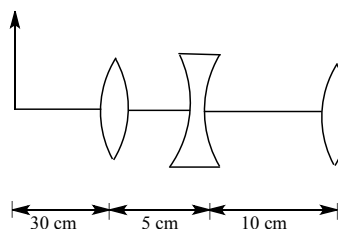


Class : XIIth
Date :

Subject : PHYSICS
DPP No. : 5

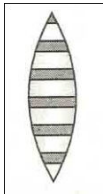
Topic :- RAY OPTICS AND OPTICAL INSTRUMENTS

- The power of two convex lenses A and B are 8 dioptres and 4 dioptres respectively. If they are to be used as a simple microscope, the magnification of
 - B will be greater than A
 - A will be greater than B
 - The information is incomplete
 - None of the above
- The position of final image formed by the given lens combination from the third lens will be at a distance of $[f_1 = +10 \text{ cm}, f_2 = -10 \text{ cm}, f_3 = +30 \text{ cm}]$

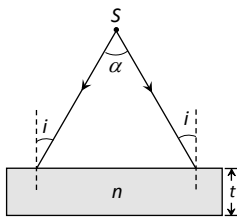


- 15 cm
 - Infinity
 - 45 cm
 - 30 cm
- A thin prism P_1 with angle 4° made from a glass of refractive index 1.54 is combined with another thin prism P_2 made from glass of refractive index 1.72 to produce dispersion without deviation. The angle of the prism P_2 is
 - 5.33°
 - 4°
 - 3°
 - 2.6°
 - The plane face of a planoconvex lens is silvered. If μ be the refractive index and R , the radius of curvature of curved surface, then the system will behave like a concave mirror of radius of curvature
 - μR
 - $\frac{R}{(\mu - 1)}$
 - $\frac{R^2}{\mu}$
 - $\left[\frac{(\mu + 1)}{(\mu - 1)} \right] R$
 - The refractive index of water and glycerine are 1.33 and 1.47 respectively. What is the critical angle for a light ray going from the latter to the former?
 - $60^\circ 48'$
 - $64^\circ 48'$
 - $74^\circ 48'$
 - None of these

6. A layered lens as shown in figure is made of two types of transparent materials indicated by different shades. A point object is placed on its axis. The object will form



- a) 1 image b) 2 images c) 3 images d) 9 images
7. When the light enters from air to glass, for which colour the angle for deviation is maximum?
a) Red b) Yellow c) Blue d) Violet
8. A neon sign does not produce
a) Line spectrum b) An emission spectrum
c) An absorption spectrum d) Photos
9. Image formed by a convex mirror is
a) Virtual b) Real c) Enlarged d) Inverted
10. Monochromatic light of frequency 5×10^{14} Hz travelling in vacuum enters a medium of refractive index 1.5. Its wavelength in the medium is
a) 4000\AA b) 5000\AA c) 6000\AA d) 5500\AA
11. If two +5 D lenses are mounted at some distance apart, the equivalent power will always be negative, if the distance is
a) Greater than 40 cm b) Equal to 10 cm c) Equal to 10 cm d) Less than 10 cm
12. When a ray of light emerges from a block of glass, the critical angle is
a) Equal to the angle of reflection
b) The angle between the refracted ray and the normal
c) The angle of incidence for which the refracted ray travels along the glass-air boundary
d) The angle of incidence
13. The magnifying power of a telescope is m . If the focal length of the eye-piece is halved, then its magnifying power is
a) $2m$ b) $\frac{m}{2}$ c) $\frac{1}{2m}$ d) $4m$
14. A diverging beam of light from a point source S having divergence angle α , falls symmetrically on a glass slab as shown. The angles of incidence of the two extreme rays are equal. If the thickness of the glass slab is t and the refractive index n , then the divergence angle of the emergent beam is



- a) Zero b) α c) $\sin^{-1}(1/n)$ d) $2 \sin^{-1}(1/n)$

15. When white light passes through a glass prism, one gets spectrum on the other side of the prism. In the emergent beam, the ray which is deviating least is
or
Deviation by a prism is lowest for
a) Violet ray b) Green ray c) Red ray d) Yellow ray
16. A beam of parallel rays is brought to focus by a plano-convex lens. A then concave lens of the same focal length is joined to the first lens. The effect of this is
a) The focus shifts to infinity
b) The focal point shifts towards the lens by a small distance
c) The focal point shifts away from the lens by a small distance
d) The focus remains undisturbed
17. In a compound microscope, if the objective produces an image I_o and the eye piece produces an image I_e , then
a) I_o is virtual but I_e is real b) I_o is real but I_e is virtual
c) I_o and I_e are both real d) I_o and I_e are both virtual
18. A person is suffering from myopic defect. He is able to see clear objects placed at 15 cm. What type and of what focal length of lens he should use to see clearly the object placed 60 cm away
a) Concave lens of 20 cm focal length b) Convex lens of 20 cm focal length
c) Concave lens of 12 cm focal length d) Convex lens of 12 cm focal length
19. A 2.0 cm tall object is placed 15 cm in front of a concave mirror of focal length 10 cm. What is the size and nature of the image
a) 4 cm, real b) 4 cm, virtual c) 1.0 cm, real d) None of these
20. The numerical aperture for a human eye is of the order of
a) 1 b) 0.1 c) 0.01 d) 0.001