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## Light

1. When a ray of light is incident on a water filled glass tank from a glass making a non-zero angle to the normal, the emergent ray from the opposite will follow a path which is:
- (a) same (b) deflected to the right  
(c) deflected to the left (d) parallel but not same
2. A red flower kept in green light will appear:
- (a) red (b) green (c) white (d) black
3. Chromatic aberration in a lens is caused by:
- (a) reflection (b) interference  
(c) diffraction (d) dispersion
4. The image of an object formed by device is always virtual and small. The device may be:
- (a) convex lens (b) concave lens  
(c) concave lens (d) none of these
5. A light wave enters from air into a medium of refractive index 1.5. The speed of light in the medium will be:
- (a)  $2 \times 10^8$  m/s (b)  $4.5 \times 10^8$  m/s  
(c)  $3 \times 10^8$  m/s (d) none of these
6. A boy stands straight in front of a mirror at distance of 30 cm from it. He sees his erect image whose height is  $\frac{1}{5}$  of his real height. The mirror he is using is:
- (a) plane (b) convex (c) concave (d) none
7. As an object gets closer to the focal point of a converging lens from infinity, its image:
- (a) becomes smaller  
(b) remains of the same size  
(c) gets farther from the lens  
(d) gets closer to the lens
8. Image formed by a convex spherical mirror is:
- (a) virtual (b) real (c) enlarged (d) inverted
9. The path of a refracted ray of light in a prism is parallel to the base of the prism only when the:
- (a) Light is of a particular length  
(b) ray is incident normally at one face  
(c) ray undergoes minimum deviation  
(d) none of these
10. If the top half of a convex lens is covered with black paper:
- (a) the bottom half of the image will disappear  
(b) the top half of the image will disappear  
(c) the magnification will be reduced to half  
(d) the intensity will be reduced to half
11. The refractive index of a piece of transparent quartz is the greatest for:
- (a) red light (b) yellow light  
(c) green light (d) violet light
12. A convex lens is immersed in a liquid of refractive index greater than that of glass. It will behave as a:
- (a) convergent lens (b) divergent lens  
(c) plane glass (d) none of these
13. Air bubble in water behaves as a:
- (a) divergent lens (b) convergent lens  
(c) plane glass (d) none of these
14. Plane mirror A and B are kept at angle  $\theta$  with respect to each other. Light falls on A is reflected then falls on B and is reflected. The emergent ray is opposite to the incident direction. The angle  $\theta$  is equal to:
- (a)  $30^\circ$  (b)  $45^\circ$  (c)  $60^\circ$  (d)  $90^\circ$
15. Which one of the following phenomenon is used in optical fibers:
- (a) scattering (b) successive reflections  
(c) refraction (d) total internal reflection
16. 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
17. Focal length of convex lens is maximum for:
- (a) blue light (b) yellow light  
(c) green light (d) red light

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18. The magnifying power of a compound microscope is:

- (a) objective magnification/eye piece magnification
- (b) eye piece magnification X objective magnification
- (c) eye piece magnification/objective magnification
- (d) objective magnification+ eye piece magnification

19. The human eye has lens which has a :

- (a) soft portion at its centre
- (b) hard surface
- (c) varying refractive index
- (d) constant refractive index

20. When light enters from air to water, then its:

- (a) frequency increases and speed decrease
- (b) frequency is same but the wavelength is smaller in water than in air.
- (c) frequency is same but the wavelength is larger in water than in air.
- (d) frequency and wavelength both decrease.

21. Total internal reflection of light is possible when light enters from:

- (a) air to glass
- (b) vacuum to air
- (c) air to water
- (d) water to air

22. To have larger magnification by a telescope:

- (a) the objective should be of large focal length and eyepiece should be of small focal length
- (b) both the objectives and eyepiece should be of small focal length
- (c) both the objective and the eyepiece should be large focal length
- (d) none of these

23. How many images will be formed of two mirrors are fitted adjacent walls and one mirror on ceiling:

- (a) 5
- (b) 7
- (c) 11
- (d) 2

24. If the refractive angle of a prism is  $60^\circ$  and the minimum deviation is  $30^\circ$ , then the angle of incidence is:

- (a)  $30^\circ$
- (b)  $60^\circ$
- (c)  $45^\circ$
- (d)  $90^\circ$

25. Critical angle is minimum when a light ray passes from:

- (a) air to glass
- (b) glass to air
- (c) glass to water
- (d) water to glass

[Type text]

26. In the figure, an air lens is cut in a cylinder of glass of refractive index 1.5. The nature of the lens is:

- (a) diverging
- (b) converging
- (c) neither diverging nor converging
- (d) none of these

27. Line spectrum contains information about:

- (a) the atom of the prism
- (b) the atom of the source
- (c) the molecules of the source
- (d) none of these

28. If the central portion of a convex lens is wrapped in black paper as shown in the figure:

- (a) no image will be formed by the remaining portion of the lens
- (b) full image will be formed, but it will be less bright
- (c) the central portion of the image will be missing
- (d) none of these

29. All of the following statements are correct expect:

- (a) the magnification produced by a convex mirror is always less than one
- (b) a virtual, erect, same sized image can be obtained using a plane mirror
- (c) a virtual, erect magnified image can be formed using a concave mirror
- (d) a real, inverted, same sized image can be formed using a convex mirror

30. When seen in green light, the saffron and green portions of our nation flag will appear as:

- (a) black
- (b) black and green respectively
- (c) green
- (d) green and yellow respectively