DPP(MCQs) ICSE CLASS X PHYSICS

REFRACTION THROUGH PLANE

SURFACE

1. Refraction of light is the phenomenon of
(a) movement of light
(b) bending of light
(c) distribution of light
(d) scattering of light

2. Light when travels from one medium to another refracts because of ....
(a) difference in refractive index
(b) difference in velocities
(c) difference in wavelengths
(d) all of the above

3. A ray of light bends .... from the normal when it travels from optically rarer medium to an optically denser medium
(a) away   (b) towards
(c) far away   (d) very close

4. A ray of light when travels from .... medium to .... medium it bends away from the normal
(a) rarer to rarer   (b) denser to denser
(c) rarer to denser   (d) denser to rarer

5. A ray of light travels undeviated on passing through the optical boundary
(a) if both mediums are same
(b) both have the same refractive index
(c) the ray makes an angle of $0°$ with the normal
(d) all the above

6. A ray travelling parallel to the optical boundary along its surface
(a) will undergo no refraction
(b) will partially refract and partially travel undeviated
(c) will suffer total internal reflection
(d) none of the above

7. Two light rays incident parallel to each other on an optical boundary will undergo the same refraction.
(a) True   (b) False

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(c) can't say

(d) none of the above

8. Can two refracted rays be parallel to each other even if incident rays are not?

(a) Yes always   (b) No

(c) Never   (d) Yes possible

9. Is Snell's law applicable when a ray of light is incident normal to the optical boundary?

(a) No never   (b) Yes always

(c) not determined   (d) not applicable

10. Is Snell's law applicable when a ray of light is incident perpendicular to the normal at the point of incidence?

(a) Of course yes

(b) Obviously no

(c) undecided

(d) It is an exception for the validity of the law.

11. Lateral displacement is

(a) perpendicular shift between emergent ray and incident ray

(b) perpendicular shift between incident ray and emergent ray

(c) parallel shift between incident ray and emergent ray

(d) parallel shift between emergent ray and incident ray

12. Lateral displacement occurs in case of

(a) Cuboidal glass block

(b) rectangular glass block

(c) two equiangular prisms held near each other with faces parallel to one another

(d) all of the above

13. Angular deviation in case of lateral displacement is

(a) 0°   (b) 180°

(c) 360°   (d) all of the above.

14. Lateral displacement .... with increase in angle of incidence.

(a) increases   (b) decreases

(c) remains same   (d) keeps changing

15. Lateral displacement decreases with .... in wavelength.

(a) decrease   (b) increase

(c) no change   (d) none of these.

16. Greater the optical density .... is lateral displacement

(a) greater   (b) less

(c) equal   (d) none of these

17. Slimmer the glass slab .... the lateral displacement

(a) more   (b) less

(c) equal   (d) none of these.

18. Critical angle is the angle of ....

(a) refraction   (b) incidence

(c) reflection   (d) emergence.

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19. The refractive index is related to critical angle as ....

(a) reciprocal of angle of incidence

(b) reciprocal of angle of emergence

(c) [critical angle]^2

(d) [sin C]$^{-1}$

20. Velocity of light is more in .... than ....

(a) air, water

(b) water, air

(c) sea water, mineral water

(d) brown glass, transparent glass

21. Velocity of light is .... to refractive index

(a) directly proportional

(b) inversely proportional

(c) independent

(d) none of the above.

22. Greater the refractive index .... the apparent depth.

(a) more   (b) same

(c) less   (d) none of these

23. Thicker the glass slab .... is the object appearing to be raised

(a) more   (b) less

(c) uniform   (d) all of these.

24. Greater the angle of refraction .... the lateral displacement

(a) same   (b) more

(c) less   (d) can't say

25. An equiangular prism is a

(a) total reflecting prism

(b) refracting prism

(c) dispersing prism

(d) all of the above

26. The deviation produced in case of an equiangular prism is called ....

(a) equal deviation

(b) angular deviation

(c) lateral deviation

(d) none of the above

27. The measure of angular deviation in case of a prism is called ....

(a) refrangibility of light

(b) refractibility of light

(c) reflectivity of light

(d) reversibility of light

28. For minimum deviation the angle of incidence .... angle of refraction.

(a) less than

(b) greater than

(c) equal to

(d) directly proportional to

29. The emergent ray and incident ray should be equally inclined to the refracting surfaces of a prism in ....

(a) no deviation condition

(b) minimum deviation condition

(c) maximum deviation position

(d) equal deviation position

30. The refracted ray is .... to the base of the prism in minimum deviation position.

(a) parallel

(b) perpendicular

(c) collinear

(d) inclined

31. Is it correct to say that angle of incidence is equal to angle of emergence?

(a) Yes   (b) No

(c) both (a) and (b)   (d) none of these

32. Is minimum angular deviation applicable for isosceles right-angled prism?

(a) Yes   (b) No

(c) not defined   (d) none of these

33. A ray of light from the light house reaches the submarine which is under water. The sailor places a plane mirror such that angle between the light ray and the mirror is 0°. Where would he see the light house?

(a) he won't see the light source at all

(b) at the same position as no refraction occurs

(c) at the same position as light reverses along the same path

(d) it is pitch dark to relocate the light from the submarine.

34. A fish while on the surface of water has its angle of view as α, while it is in water the angle of vision becomes β. Compare the two angles of view.

(a) α = β   (b) α > β

(c) α < β   (d) can't say.

35. A fisherman points towards the .... while harpoon hunting.

(a) tail   (b) eye

(c) head   (d) body

36. A coconut tree appears to be .... when viewed by a sea diver from below the water surface.

(a) taller   (b) shorter

(c) same size   (d) distorted.

37. Stars appear to twinkle while planets don't because

(a) they are luminous as compared to planets

(b) they are at far off distances

(c) stars undergo T.I.R while planets refract

(d) both (a) and (b).

38. Face of a person sitting near a camp fire appears to shimmer because of

(a) total internal reflection

(b) refraction of light

(c) scattering of light

(d) dispersion of light

39. Diamond sparkles only in the dark. Is this statement true?

(a) yes always   (b) no never

(c) No   (d) Yes

40. If light is not incident on diamond the diamond would never sparkle.

(a) True   (b) False

(c) none of these   (d) both (a) and (b)

41. Diamond sparkle because of ....

(a) T.I.R followed by entrapping of light inside it

(b) Refraction followed by T.I.R

(c) T.I.R followed by refraction

(d) none of the above

42. Water being completely transparent can appear shiny like a mirror due to

(a) Total internal reflection

(b) dispersion

(c) refraction of light

(d) absorption of light.

43. A lightning strikes a window pane and produces a crack in it. This crack appears silvery because of ....

(a) Total internal reflection

(b) Fineness of the crack

(c) Light being entrapped in the crack

(d) Diffraction.

44. Formation of mirage is because of the thirst felt by the nomadic traveller?

(a) True   (b) False

(c) not sure   (d) none of these.

45. Mirage is a consequence of TIR followed by successive refraction.

(a) Yes   (b) No

(c) both (a) and (b)   (d) none of these

46. High speed internet is provided by the use of ....

(a) Jio network   (b) 5G plan

(c) Airtel network   (d) Optical fiber

47. Optical fibre works on the principle of ....

(a) satellite signals

(b) total internal reflection

(c) Optical transmission

(d) internet mobile towers

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48. Can a black body which absorbs 100% light appear to be silvery?

(a) Yes

(b) No never

(c) No not always

(d) both (a) and (c)

49. Is black a colour of light?

(a) Yes

(b) No

(c) can't say

(d) none of the above

50. The refractive index of glass is 1.5 when the ray of light travels from air to glass. Calculate the refractive index when light travels from glass to air.

(a) 0.67　　　　　(b) 0.33

(c) 0.5　　　　　(d) 1.5

51. The ratio of sine of angle of incidence and sine of angle of refraction is 0.75 while traveling from air to water. Its refractive index of water with respect to air is

(a) 1.25　　　　　(b) 1.5

(c) 1.33　　　　　(d) 2.4

52. The refractive index of a material is 1.20. If the velocity of light in vacuum is $3 \times 10^8 ms^{-1}$. Find the velocity of light in the material.

(a) $2.5 \times 10^8 ms^{-1}$　　　　　(b) $2 \times 10^8 ms^{-1}$

(c) $4 \times 10^8 ms^{-1}$　　　　　(d) none of these.

53. A glass block 3cm thick is placed over a newspaper. Calculate the height through which the image of the newspaper is raised if refractive index of the glass slab is 1.5

(a) 4cm　　　　　(b) 2cm

(c) 3cm　　　　　(d) 1cm

54. The floor of a water tank appears at a depth of 2.5m. If refractive index of water is 1.33, find the actual depth of water?

(a) 3.325m　　　　　(b) 3.5m

(c) 4m　　　　　(d) 4.5m

55. A stone is placed at the bottom of a water tank appears to be raised by 80cm. If refractive index of water is 4/3, find the actual depth of stone from the free water surface.

(a) 200cm　　　　　(b) 320cm

(c) 400cm　　　　　(d) 360cm