PHYSICS

BOOKS - ZEN PHYSICS (KANNADA ENGLISH)

THE HUMAN EYE AND THE COLOURFUL WORLD

Questions Section In Text Questions

1. What is meant by power of accomodation of the eye ?

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2. A person with a myopic eye cannot see objects beyond 1.2 m distinctly. What should be the type of the corrective lens used to restore proper vision ?

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3. What is the far point and near point of the human eye with normal vision ?

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4. A student has difficulty in reading the blackboard while sitting in the last row. What could be the defect the child is suffering from ? How can it be corrected ?

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5. What is meant by power of accomodation of the eye ?

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7. What is the far point and near point of the human eye with normal vision ?

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8. A student has difficulty in reading the blackboard while sitting in the last row. What could be the defect the child is suffering from ? How can it be corrected ?

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Questions Section Textual Exercise

1. Ability of the eye to see objects at all distances is called :

A. presbyopia

B. accomodation

C. near-sightedness

D. far-sightedness

Answer:

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2. The human eye forms the image of an object at its

A. cornea

B. iris

C. pupil

D. retina

Answer:

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3. The least distance of distinct vision for a young adult with normal vision is about

A. 25 m

B. 2.5 cm

C. 25 cm

D. 2.5 m

Answer:

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4. The change in focal length of an eye lens is caused by the action of the

A. pupil

B. retina

C. ciliary muscles

D. iris

Answer:

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5. A person needs a lens of power -5.5 dioptres for correcting his distant vision, for correcting his near vision he needs a lens of power +1.5 dioptre. What is the focal length of the lens required for correcting (i) distant vision and (ii) near vision ?

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6. The far point of a myopic person is 80 cm in front of the eye. What is the nature and power

of the lens required to correct the problem ?

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7. Make a diagram to show how hypermetropia is corrected. The near point of a hypermetropia eye is 1m. What is the power of the lens required to correctt this defect ? Assume that the near point of the normal eye is 25 cm.

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8. Why is a normal eye not able to see clearly the objects placed closer that 25 cm ?

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9. What happens to the image distance in the eye when we increase the distance of an object from the eye ?

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10. What causes twinkling of stars ?

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11. Explain why the planets do not twinkle?

Watch Video Solution

12. Why does the Sun appear reddish early in the morning ?

Watch Video Solution

13. Why does the sky appear dark instead of blue to an astronaut ?

Watch Video Solution

14. The human eye can focus objects at different distance by adjusting the focal length of the eye lens. This is due to

A. presbyopia

B. accomodation

C. near-sightedness

D. far-sightedness

Answer:

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15. The human eye forms the image of an object at this

A. cornea

B. iris

C. pupil

D. retina

Answer:

Watch Video Solution

16. Define the least distance of distinct vision.

What is its value ?

A. 25 m

B. 2.5 cm

C. 25 cm

D. 2.5 m

Answer:

Watch Video Solution

17. The change in focal length of an eye lens is caused by the action of the

A. pupil

B. retina

C. ciliary muscles

D. iris

Answer:

Watch Video Solution

18. A person needs a lens of power -5.5 dioptres for correcting his distant vision, for correcting his near vision he needs a lens of power +1.5 dioptre. What is the focal length of

the lens required for correcting (i) distant vision and (ii) near vision ?

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19. The far point of a myopic person is 80 cm in front of the eye. What is the nature and power of the lens required to correct the problem ?

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20. Make a diagram to show how hypermetropia is corrected. The near point of a hypermetropia eye is 1m. What is the power of the lens required to correctt this defect ? Assume that the near point of the normal eye is 25 cm.

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21. Why is a normal eye not able to see clearly the objects placed closer that 25 cm ?

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22. What happens to the image distance in the eye when we increase the distance of an object from the eye ?

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25. Why does the Sun appear reddish early in the morning ?

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26. Why does the sky appear dark instead of blue to an astronaut ?

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Zen Additional Questions Section Multiple Choice Questions

1. When light rays enter the eye, most of the refraction occurs at the

A. crystalline lens

B. outer surface of the cornea

C. iris

D. pupil

Answer: B

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2. The focal length of the eye lens increases when eye muscles

A. are relaxed and lens becomes thinner

B. contract and lens becomes thicker

C. are relaxed and lens becomes thicker

D. contract and lens becomes thinner

Answer: A

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3. Which of the following statements is correct ?

A. A person with myopia can see distant objects clearly

B. A person with hypermetropia can see nearby objects clearly

C. A person with myopia can see nearby objects clearly

D. A person with hypermetropia cannot see distant objects clearly

Answer: C

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4. The change that occurs in the eye to see the distant object clearly is

A. focal length of the eye lens decreases

B. curvature of the eye lens increases

C. focal length of the eye lens increases

D. ciliary muscles of the eye contract

Answer: C

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5. Light enters of the eye through a thin, transparent membrane known as

A. cornea

B. pupil

C. retina

D. iris

Answer: A

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6. Human eye can be compared to

A. binoculars

B. telescope

C. camera

D. microscope

Answer: C

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7. The type of lens present in the human eye is

A. Bifocal

B. Concave

C. Convex

D. Both concave and convex

Answer: C

Watch Video Solution

8. The image formed by retina of human eye is

A. Real and erect

B. Real and inverted

C. Virtual and inverted

D. Virtual and erect

Answer: B

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9. The phenomenon of light responsible for the working of the human eye is

A. Reflection

B. Disperson

C. Power of accomodation

D. Persistence of vision

Answer: C

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10. Which part of the eye works like a photographic plate of a camera ?

A. Retina

B. Pupil

C. Iris

D. Cornea

Answer: A

Watch Video Solution

11. In normal human eye, the image is formed

A. behind retina

B. in front of retina

C. on retina

D. in between lens and retina

Answer: C

Watch Video Solution

12. The fluid between the retina and the eye lens is called

A. aqueous homour

B. eye gel

C. tears

D. vitreous humour

Answer: D

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13. Which vision defect causes the eye lens to become milky and cloudy ?

A. Myopia

B. Presbyopia

C. Cataract

D. Hypermetropia

Answer: C

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14. The defect of vision which occurs due to excessive curvature of the eye lens is

A. Myopia

B. Hypermetropia

C. Presbyopia

D. Cataract

Answer: A

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15. The defect of vision arises when the focal length of the eye is too long is

A. Myopia

B. Cataract

C. Presbyopia

D. Hypermetropia

Answer: D

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16. Which part of the human eye is mainly donated after death ?

A. Retina

B. pupil

C. Iris

D. Cornes

Answer: D

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17. The scientist who first demonstrated that sunlight is composed of seven colours is

A. Maxwell

B. newton

C. Einstein

D. Faraday

Answer: B

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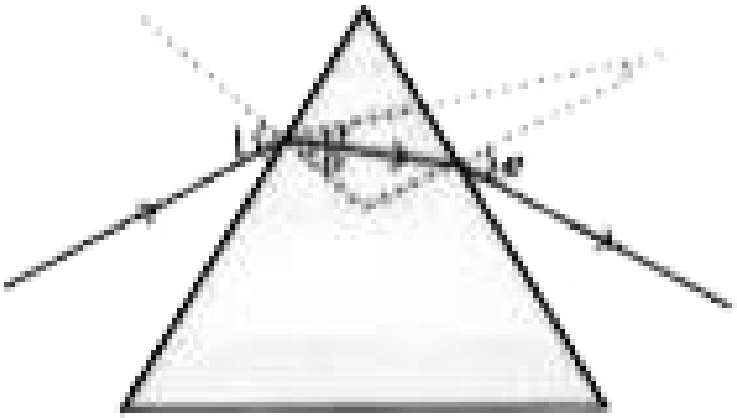
18. After tracing the path of a ray of light through a glass prism, a student has marked the angle of incidence [$\angle i$], angle of refraction [$\angle r$], angle of emergence [$\angle e$], angle of prism [$\angle A$], and angle of deviation [$\angle D$] as shown in

the diagram. The correctly marked angles are :



A. $\angle i$ and $\angle r$

B. $\angle i$ and $\angle e$

C. $\angle i$, $\angle e$ and $\angle D$

D. $\angle i$, $\angle r$ and $\angle e$

Answer: B

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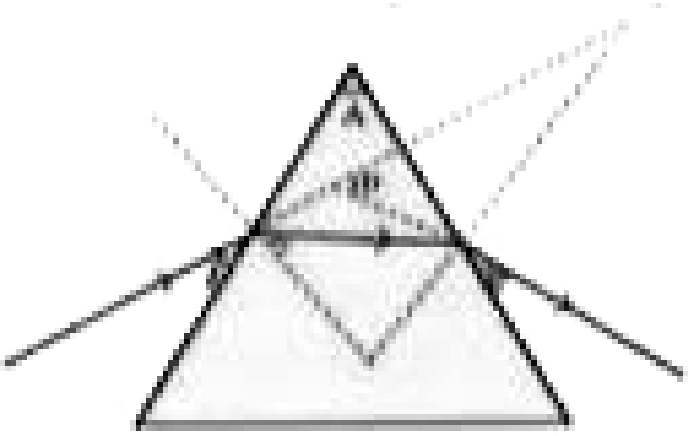
19. In the following ray diagra m the correctly marked angles are :



A. $\angle i$ and $\angle e$

B. $\angle A$ and $\angle D$

C. $\angle i$, $\angle r$and $\angle D$

D. $\angle r$, $\angle A$and $\angle D$

Answer: D

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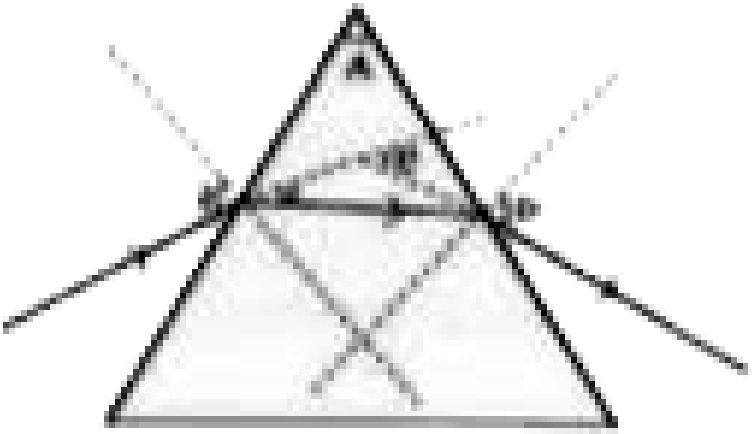
20. Study the following digure in which the student has marked the angle of incidence [$\angle i$], anfle of refraction [$\angle r$], angle of emergence [$\angle e$], angle of prism [$\angle A$], and angle of deviation [$\angle D$]. The correctly marked angles

are :



A. $\angle A$ and $\angle i$

B. $\angle A$, $\angle i$and $\angle r$

C. $\angle A$, $\angle i$, $\angle e$ and $\angle D$

D. $\angle A$, $\angle i$, $\angle r$ and $\angle D$

Answer: A

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21. A student traces the path of a ray of light through a triangular glass prism for different values of angles of incidence. On analysing the ray diagrams, which one of the conclusions is he likely to draw ?

A. The emergent ray is parallel to the incident ray.

B. The emergent ray bends at an angle to the direction of the incident ray.

C. The emergent ray and the refracted ray are at right angles to each other.

D. The emergent ray is perpendicular to the incident ray.

Answer: B

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22. Which colour is scattered the most ?

A. Blue

B. Orange

C. green

D. Red

Answer: A

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23. Atmospheric refraction advances sunrise and delays sunset by

A. 2 sec

B. 2 min

C. 20 min

D. 2 hrs

Answer: B

Watch Video Solution

24. What is Tyndall effect ?

A. liquid particles

B. solution

C. colloidal particles

D. solvent molecules

Answer: C

 Watch Video Solution

25. When light rays enter the eye, most of the refraction occurs at the

A. crystalline lens

B. outer surface of the cornea

C. iris

D. pupil

Answer: B

Watch Video Solution

26. The focal length of the eye lens increases when eye muscles

A. are relaxed and lens becomes thinner

B. contract and lens becomes thicker

C. are relaxed and lens becomes thicker

D. contract and lens becomes thinner

Answer: A

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27. Which of the following statements is correct ?

A. A person with myopia can see distant objects clearly

B. A person with hypermetropia can see nearby objects clearly

C. A person with myopia can see nearby objects clearly

D. A person with hypermetropia cannot see distant objects clearly

Answer: C

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28. The change that occurs in the eye to see the distant object clearly is

A. focal length of the eye lens decreases

B. curvature of the eye lens increases

C. focal length of the eye lens increases

D. ciliary muscles of the eye contract

Answer: C

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29. Light enters of the eye through a thin, transparent membrane known as

A. cornea

B. pupil

C. retina

D. iris

Answer: A

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30. Human eye can be compared to

A. binoculars

B. telescope

C. camera

D. microscope

Answer: C

Watch Video Solution

31. The type of lens present in the human eye is

A. Bifocal

B. Concave

C. Convex

D. Both concave and convex

Answer: C

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32. The image formed by retina of human eye is

A. Real and erect

B. Real and inverted

C. Virtual and inverted

D. Virtual and erect

Answer: B

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33. The phenomenon of light responsible for the working of the human eye is

A. Reflection

B. Disperson

C. Power of accomodation

D. Persistence of vision

Answer: C

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34. Which part of the eye works like a photographic plate of a camera ?

A. Retina

B. Pupil

C. Iris

D. Cornea

Answer: A

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35. In normal human eye, the image is formed

A. behind retina

B. in front of retina

C. on retina

D. in between lens and retina

Answer: C

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36. The fluid between the retina and the eye lens is called

A. aqueous homour

B. eye gel

C. tears

D. vitreous humour

Answer: D

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37. Which vision defect causes the eye lens to become milky and cloudy ?

A. Myopia

B. Presbyopia

C. Cataract

D. Hypermetropia

Answer: C

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38. The defect of vision which occurs due to excessive curvature of the eye lens is

A. Myopia

B. Hypermetropia

C. Presbyopia

D. Cataract

Answer: A

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39. The defect of vision arises when the focal length of the eye is too long is

A. Myopia

B. Cataract

C. Presbyopia

D. Hypermetropia

Answer: D

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40. Which part of the human eye is mainly donated after death ?

A. Retina

B. pupil

C. Iris

D. Cornes

Answer: D

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41. The scientist who first demonstrated that sunlight is composed of seven colours is

A. Maxwell

B. newton

C. Einstein

D. Faraday

Answer: B

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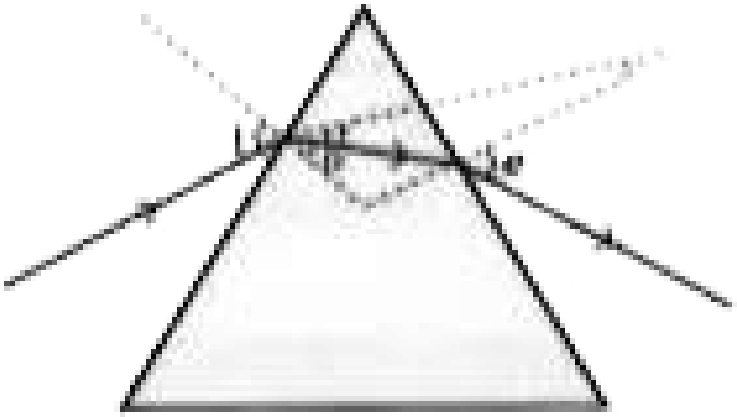
42. After tracing the path of a ray of light through a glass prism, a student has marked the angle of incidence [$\angle i$], angle of refraction [$\angle r$], angle of emergence [$\angle e$], angle of prism [$\angle A$], and angle of deviation [$\angle D$] as shown in the diagram. The correctly marked angles are :



A. $\angle i$ and $\angle r$

B. $\angle i$ and $\angle e$

C. $\angle i$, $\angle e$ and $\angle D$

D. $\angle i$, $\angle r$ and $\angle e$

Answer: B

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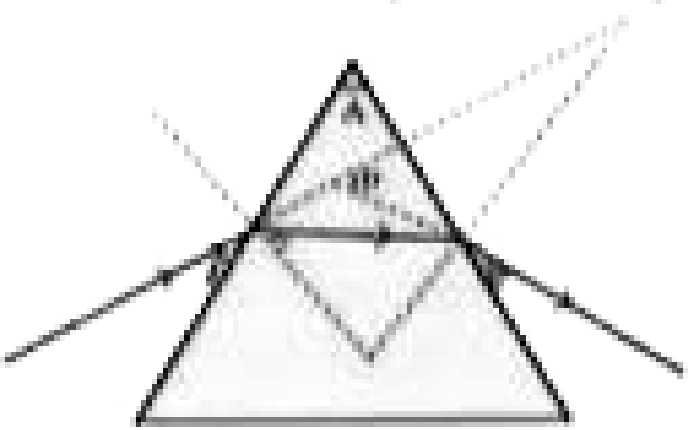
43. In the following ray diagra m the correctly marked angles are :



A. $\angle i$ and $\angle e$

B. $\angle A$ and $\angle D$

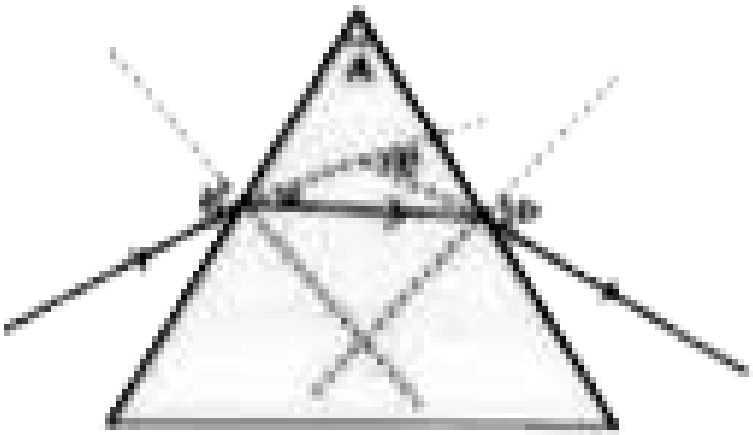
C. $\angle i$, $\angle r$and $\angle D$

D. $\angle r$, $\angle A$and $\angle D$

Answer: D

Watch Video Solution

44. Study the following digure in which the student has marked the angle of incidence [$\angle i$], anfle of refraction [$\angle r$], angle of emergence [$\angle e$], angle of prism [$\angle A$], and angle of deviation [$\angle D$]. The correctly marked angles are :



A. $\angle A$ and $\angle i$

B. $\angle A$, $\angle i$and $\angle r$

C. $\angle A$, $\angle i$, $\angle e$ and $\angle D$

D. $\angle A$, $\angle i$, $\angle r$ and $\angle D$

Answer: A

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45. A student traces the path of a ray of light through a triangular glass prism for different values of angles of incidence. On analysing the

ray diagrams, which one of the conclusions is he likely to draw ?

A. The emergent ray is parallel to the incident ray.

B. The emergent ray bends at an angle to the direction of the incident ray.

C. The emergent ray and the refracted ray are at right angles to each other.

D. The emergent ray is perpendicular to the incident ray.

Answer: B

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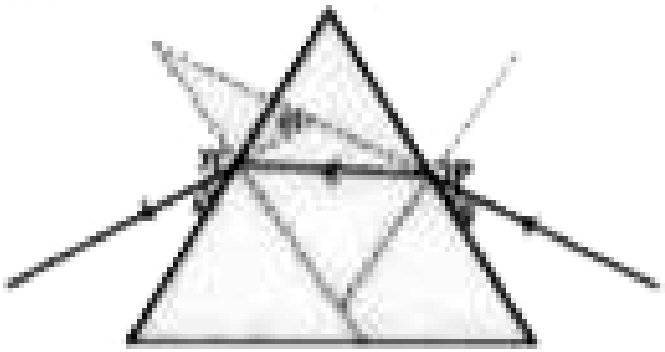
46. Study the following ray diagram. Tn this diagram, the angle of incidence, the angle of emergence, and the angle of deviation respectively have been represented by



A. y,p,z

B. x,q,z

C. p,y,z

D. p,z,y

Answer: C

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47. Which colour is scattered more effectively by air molecules in our atmosphere ?

A. Blue

B. Orange

C. green

D. Red

Answer: A

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48. Atmospheric refraction advances sunrise and delays sunset by

A. 2 sec

B. 2 min

C. 20 min

D. 2 hrs

Answer: B

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49. Tyndall effect is due to scattering by

A. liquid particles

B. solution

C. colloidal particles

D. solvent molecules

Answer: C

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Zen Additional Questions Section Very Short Answer Type Questions

1. What is cornea ?

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2. Mention the function of eye lens.

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3. Where does refraction of light rays occur in the human eye ?

Watch Video Solution

4. Mention the role of iris in the human eye.

Watch Video Solution

5. Which are the light-sensitive cells present in the retina of the human eye ?

Watch Video Solution

6. Which nerves carry electrical signals from the light-sensitive cells of retina to the brain ?

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7. Name (i) the light sensitive screen and (ii) diaphragm of the human eye.

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8. What is iris?

View Text Solution

9. Which part of the eye generates electric signals ?

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10. What is blind spot ?

Watch Video Solution

11. What is the function of pupil of the human eye ?

Watch Video Solution

12. Which muscles help in changing the shape of the eye lens ?

Watch Video Solution

13. State one point of similarity between the image formed by the human eye and the camera.

Watch Video Solution

14. Why are we not able to see the things clearly when we come out of a drak room?

Watch Video Solution

15. why does it take some time to see objects in a cinema hall when we just enter the hall from bright sunlight ? Explain in breif?

Watch Video Solution

16. Define the least distance of distinct vision. What is its value ?

Watch Video Solution

17. How is cataract caused ? How is it cured ?

View Text Solution

18. Mention one advantage of having two eyes instead of one.

Watch Video Solution

19. How do the eyes of a tiger difer from that of a rabbit ?

View Text Solution

20. What is the main advantage of having two eyes in front of the head ?

Watch Video Solution

21. A person can see nearby objects clearly but distant objects appear blurry. Which vision defect is he suffering from ?

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22. In which defect of vision is (i) the far point nearer than infinity ? (ii) near point away from 25 cm ?

Watch Video Solution

23. A person can see distant objects clearly but nearby objects appear blurry. Which defect is he suffering from ?

Watch Video Solution

24. Which vision defect arises when the eyeball (i) shrinks and (ii) elongates in size ?

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25. Which eye defect can be corrected using (i) convex lens and (ii) concave lens ?

Watch Video Solution

26. Where is the image formed if a person is suffering from (i) myopia and (ii) hypermetropia ?

Watch Video Solution

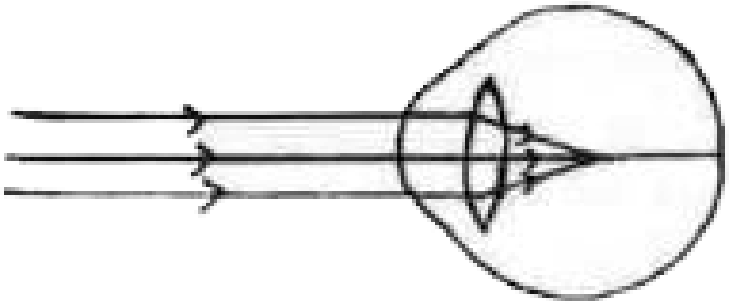
27. An aged person is having difficulty in seeing nearby objects clearly. Name this defect of vision.

Watch Video Solution

28. Bifocal lenses are used to correct which defect of vision ?

Watch Video Solution

29. Observe the given figure. Name the eye defect indicated in the figure and also mention the lens used to correct this defect.



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30. Shilpa is using spectacles. Is she eligible to pledge to donate her eyes ? Why ?

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31. What is disporsion of light? Mention the colour that bonds the least and the colour that bends the most when ligh undergoes dispersion through a prism.

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32. Name the colours that constitute white light in the order of increasing angle of deviation.

Watch Video Solution

33. List the colours observed in a spectrum through a prism in the increasing order of their deviation through the prism.

Watch Video Solution

34. Light of two colours A and B passes through a prism. A deviates more than B from

its path incidence. Which colour has a higher speed in the prism ?

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35. Mention one difference between refraction in a prism and a glass slab.

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36. A glass prism produces a spectrum when white light passes through it but a glass slab

does not do so. Explain.

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37. Why is the path of sunlight visible when it passes through the canopy of a dense forest ?

Watch Video Solution

38. Why is it dangerous to drive on a foggy day ?

Watch Video Solution

39. Name the colours of spectrum which respectively have (a) maximum wavelength (b) minimum wavelength.

Watch Video Solution

40. Why does disperson occur only on refraction and not on reflection ?

Watch Video Solution

41. How does the sky appear from the surface of the moon ?

Watch Video Solution

42. What is the reason for atmospheric refraction ?

Watch Video Solution

43. On what factor does the colour of the scattered light depend ?

Watch Video Solution

44. How does atmospheric refraction affect the duration of the day on the earth?

Watch Video Solution

45. What is the cause of random wavering or flickering of the objects near a fire or on a very hot day ?

Watch Video Solution

46. Name any two phenomena which arise due to scattering of light in the earth's atmosphere.

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47. What would have been the colour of the sky, in the absence of atmosphere ?

Watch Video Solution

48. Why are the traffic light-signals [or danger signals] of red colour ?

Watch Video Solution

49. What is cornea ?

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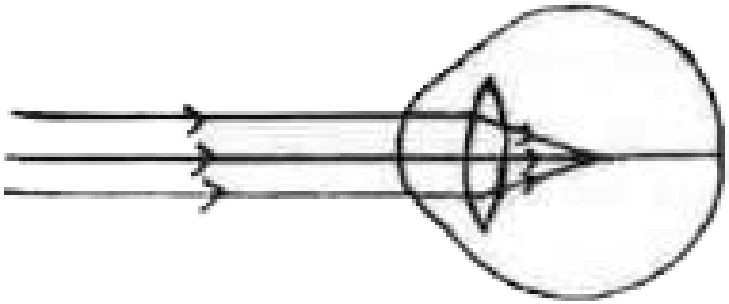

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78. Mohan is suffering from diabetes and hypertension. Can be pledge to donate his

eyes ?

Watch Video Solution

79. Shilpa is using spectacles. Is she eligible to pledge to donate her eyes ? Why ?

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91. What is the reason for atmospheric refraction ?

Watch Video Solution

92. On what factor does the colour of the scattered light depend ?

Watch Video Solution

93. How does atmospheric refraction affect the duration of the day on the earth?

Watch Video Solution

94. What is the cause of random wavering or flickering of the objects near a fire or on a very hot day ?

Watch Video Solution

95. Name any two phenomena which arise due to scattering of light in the earth's atmosphere.

Watch Video Solution

96. What would have been the colour of the sky, in the absence of atmosphere ?

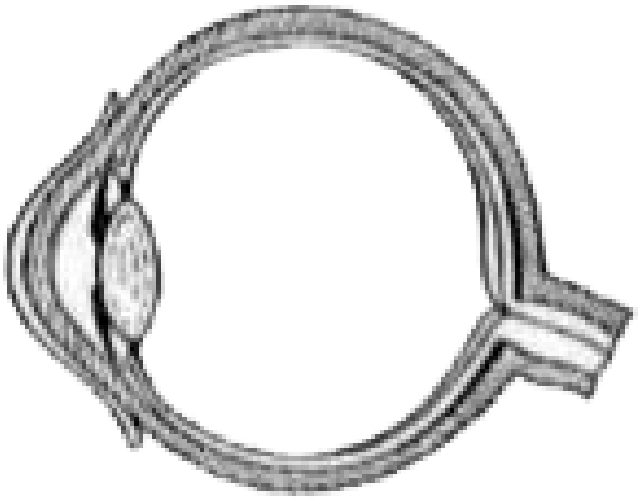
Watch Video Solution

97. Why are the traffic light-signals [or danger signals] of red colour ?

Watch Video Solution

Zen Additional Questions Section Short Answer Type Questions I

1. Name the four parts labelled as 1,2,3 and 4 in the given figure.



View Text Solution

2. In a human eye, name the following parts.

(i) A thin membrane which allows light to enter into the eyes.

(ii) The muscles which help in changing the focal length of the eye lens.

Watch Video Solution

3. How are we able to see nearby and also the distant objects clearly ?

Watch Video Solution

4. What is meant by accomodation of the eye ?

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5. Name the parts of the eye which help in this phenomena and state how they help.

View Text Solution

6. Explain the changes taking place in the cilary muscles when we focus on a nearby object and far-off objects.

View Text Solution

7. How do the iris and pupil respond to (i) dim and (ii) bright light ?

View Text Solution

8. Name the screen on which an image is formed in the eye. What is the range of vision of a normal human eye ?

Watch Video Solution

9. How can change of size of eyeball be one of the reason for (i) myopia and (ii) herpmetropia eye ? Compare the size eyeball with that of a normal eye in each case.

How does this change of size affect the position of image in each case ?

View Text Solution

10. Explain giving reason the type of lens used to correct the defect of vision in myopia.

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11. Name the part of eye where the image is formed in a nornaml human eye. State how the image position changes in myopia and hypermetropia.

Watch Video Solution

12. What is hypermetropia or far-sightedness ? Name the type of lens used to correct it.

Watch Video Solution

13. What is presbyopia ? Write two causes of this defect.

Watch Video Solution

14. What are bifocal lenses ? Who needs to use them ?

View Text Solution

15. A person is able to see objects clearly only when these are lying at a distance between 50 cm and 300 cm from his eye.

(a) What kind of defects of vision is he suffering from ?

(b) What kind of lenses are required to increases his range of vision from 25 cm to infinity ? Explain briefly.

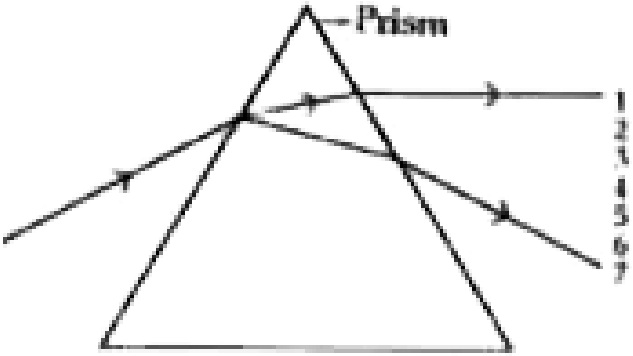
Watch Video Solution

16. What is dispersion ? What happens when light is passed through a glass prism ?

Watch Video Solution

17. A beam of white light falling a glass prism split up into seven colours marked 1 to 7 as shown in the diagram. A student makes the flowing statements about the spectrum observed on the screen : The colours at position mared 3 and 5 are similar to the

colour of the sky and the colour of gold metal, respectively. Is the above statement made by the student correct or incorrect ? Justify.



Which of the above-shown positions corresponds approximately to the colour of (a) a solution of potassium permanganate and (b) 'danger' or stop signal lights ?

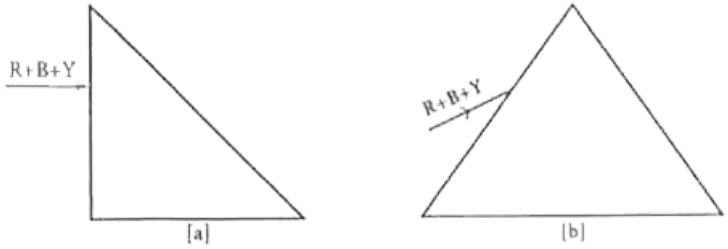
Watch Video Solution

18. List the three phenomena of light responsible for the formation of rainbow in the sky.

Watch Video Solution

19. A beam of light consisting of red, blue, and yellow colours is incident on a prism, as shown in the figures below. Complete the diagrams to

show the refracted and emergent rays.



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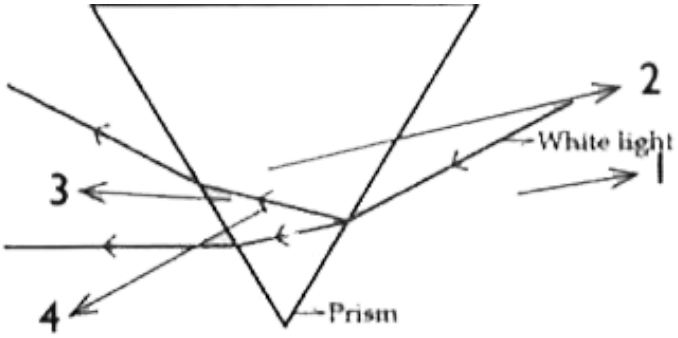
20. When a beam of white light is passed through a triangular glass prism, it gets dispersed into its seven colour components. Why do we get these colours ? In the given figure, the colours 3 and 4 represent the extreme components of the spectrum. Identify

3 and 4.



Watch Video Solution

21. Name the phenomenon responsible for (i) advance of sunrise (ii) colour of water in deep sea (iii) twinkling of stars and (iv) reddish

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Watch Video Solution

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Watch Video Solution

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View Text Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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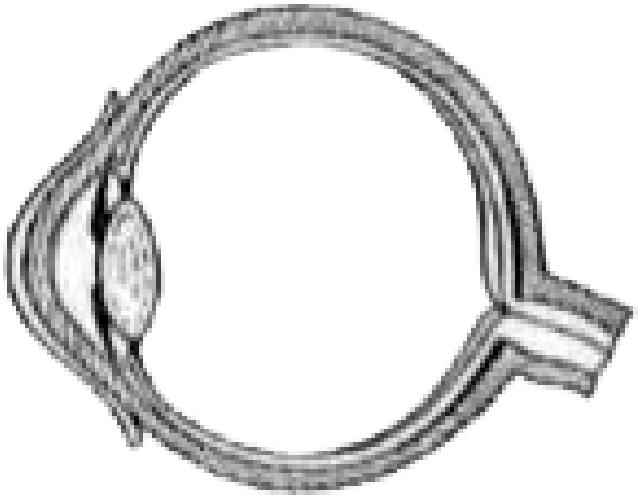

Watch Video Solution

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Watch Video Solution

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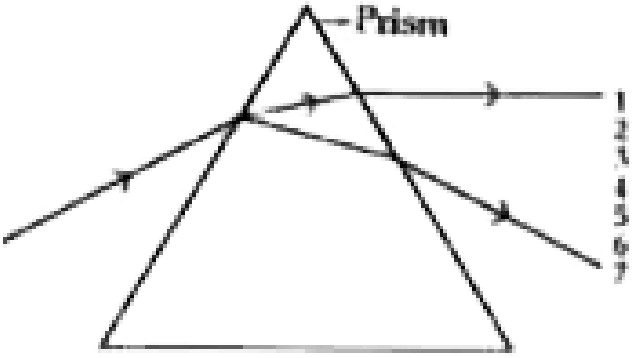

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Watch Video Solution

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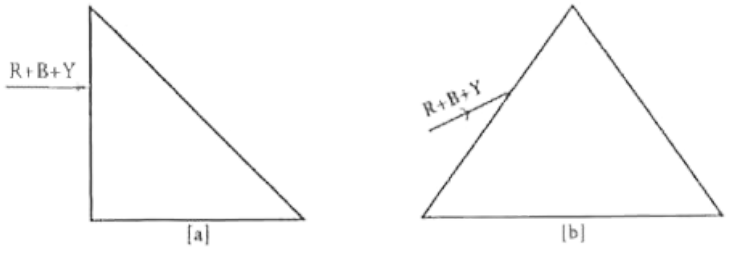

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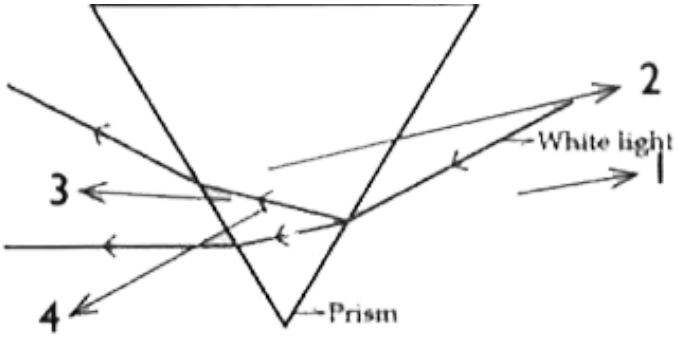

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Zen Additional Questions Section Short Answer Type Questions Ii

1. Draw a labelled diagram of the human eye. What is the significance of the blind spot ?

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2. Draw ray diagrams showing (i) myopia eye and (ii) hypermetropia eye.

Watch Video Solution

3. A person cannot see objects further than 10 metres from the eye clearly. Name the defect of vision he is suffering from. How can it be

corrected ? Draw a diagram for (i) defect of vision and also (ii) for its correction.

Watch Video Solution

4. List two main causes of a person developing near-sightedness. Show with the help of a ray diagram how this defect can be corrected.

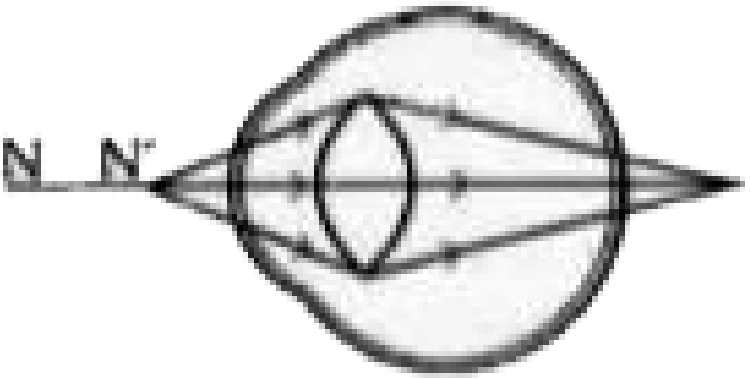
Watch Video Solution

5. Study the diagram and answer the questions the follow it :

(i) Which defect of vision is represented in the case ? Give reason for your answer.

(ii) What could be two causes of this defect ?

(iii) With the help of a diagram show how this defect can be corrected by the use of a suitable lens.



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6. A narrow beam PQ of white light is passing through a glass prism ABC as shown in the diagram. Trace it one your answer sheet and show the path of the emergent beam as observed on the screen DE.

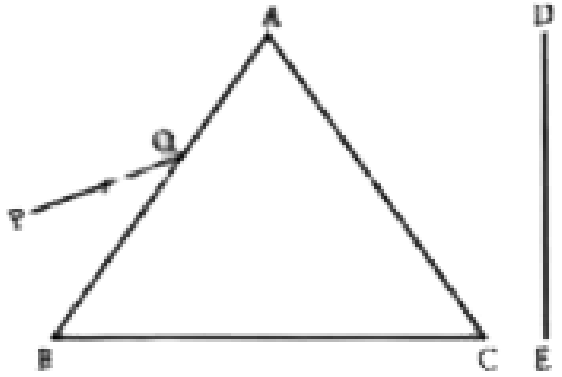
(i) Write the name and cause of the phenomenon observed.

(ii) Where else is nature is the phenomenon observed ?

(iii) Based on this observation, state the

conclusion which can be drawn about the constituents of white light.

View Text Solution

7. 

When light passes through a prism, seven colours namely VIBGYOR are seen on white screen. All these have different angles of

deviation. Explain why. Name the colours which suffer maximum and minimum deviation respectively.

Watch Video Solution

8. What is disperson of white light ? State its cause.

Draw a ray diagram to show disperson of white light by a glass prism.

Watch Video Solution

9. Describe an activity to show refraction of light through a prism. Draw relevant figure, marking angle of incidence, refraction emergence, and deviation.

Watch Video Solution

10. Draw a ray diagram to show the path of light that enters the glass prism obliquely. Label on it the angle of incidance and angle of deviation.

View Text Solution

11. Describe the formation of a rainbow in the sky with the help of a diagram.

Watch Video Solution

12. Why do different colours get separated when a white light passes through a prism ? How can we recombine the components of white light after a prism has separated them ? Explain with the help of a figure.

Watch Video Solution

13. Explain the experiment conducted by Newton to show that white light contains seven colours.

View Text Solution

14. With the help of a labelled diagram. Explain why the sun appears reddish at sunrise and sunset.

View Text Solution

15. Draw a labelled diagram of the human eye. What is the significance of the blind spot ?

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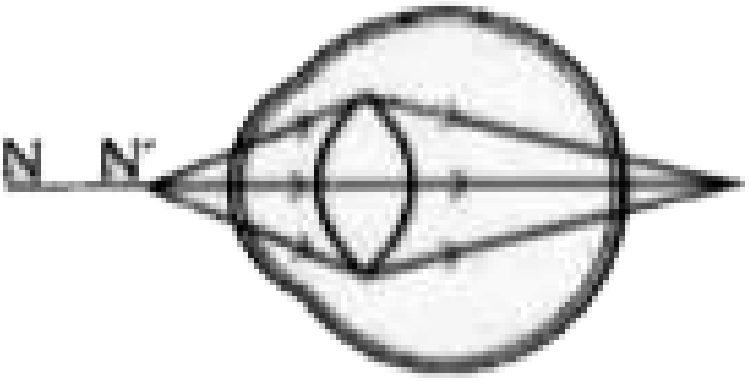

Watch Video Solution

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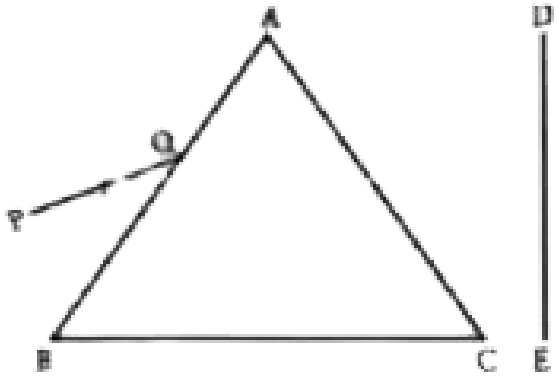
21. 

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Watch Video Solution

Zen Additional Questions Section Problem Section

1. Calculate maximum power of accomodation of a person having normal vision.

Watch Video Solution

2. How can we determine the focal length and power of the concave lens required to correct a myopia eye ?

Watch Video Solution

3. How can we determine the focal length and power of the convex lens required to correct a hypermetropia eye ?

Watch Video Solution

4. A person with a myopia eye cannot see objects beyond a distance of 1.5 m. What would be the power of the corrective lens used to restore proper vision ?

Watch Video Solution

5. A doctor prescribes a corrective lens of power -0.5 D to a person. Find the focal length of the lens. Is this lens diverging or converging? Give reason. How does the property of this lens can be used to correct eye defects ?

Watch Video Solution

6. Why does the power to clearly see near objects and far-off objects diminish with age ?

Name the defects that are likely to arise in eye in such a condition.

Watch Video Solution

7. The far point of a myopia eye is 60 cm. Find the focal length of the lens used to correct it.

Watch Video Solution

8. Ravi kept a book at a distance of 10 cm from the eyes of his friend Hari. Hari is not able to

read anything written on the book. Why ?

Watch Video Solution

9. A lens of focal length 5 cm is being used by a student in the laboratory as a magnifying glass. His least distance of distinct vision is 25 cm. What magnification is the student getting?

Watch Video Solution

10. A myopia person can see things clearly only when they lie between 10 cm and 80 cm from the eye. Which lens would enable him to see the moon clearly ?

Watch Video Solution

11. A person wants to read a book placed at 20 cm whereas the near poit of his eyes is 50 cm. Calculate the power of the lens required.

Watch Video Solution

12. The far point of a myopia person is 200 cm. Calculate the power of a lens required to enable him to see distant objects clearly.

Watch Video Solution

13. Explain the structure and functioning of the human eye. How are we able to see nearby and distant objects ?

View Text Solution

14. What is atmospheric refraction ? Use this phenomenon to explain the following natural events : (i) Twinkling of stars (ii) Advanced sunrise and delayed sunset. Draw diagram to illustrate your answer.

View Text Solution

15. What is Tyndall effect? What is its cause ? Name two phenomena observed in daily life based on Tyndall effect.

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Zen Additional Questions Section Higher Order Thinking Skills Hots

1. Rohan is not able to contract his iris properly due to defect in his eyes. Rohan would not be able to see :

(i) in dim light (ii) in bright light

(iii) nearby objects (iv) distant objects

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2. What happens to the focal length of the eye lens when ciliary muscles (i) relax (ii) contract ?

Watch Video Solution

3. A person is wearing spectacles which is (i) thicker at the centre (ii) thinner at the centre and (iii) made of two different types of lenses. Identify the type of lens and the defect of vision the person is suffering from, in each case.

Watch Video Solution

4. Does disperson occur in a follow prism ? Given reason.

View Text Solution

5. Does a prism disperse when immersed in water ? If so, how is its spectrum affected ?

Watch Video Solution

6. Which of the following persons can donate their eyes after death ? A person suffering from (i) Hepatitis B (ii) myopia (iii) leukaemia (iv) asthma.

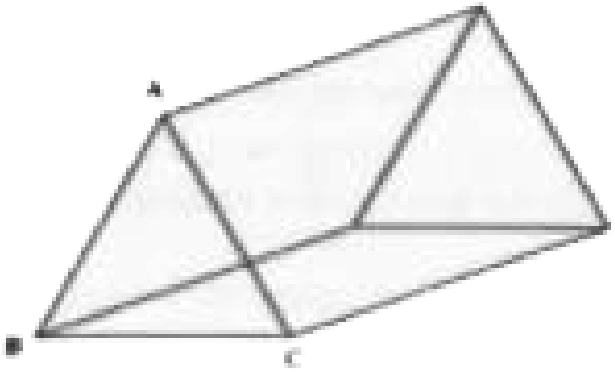
View Text Solution

7. In the spectrum of white light, which colour is deviated maximum ?

(a) Red (b) Yellow (c) green (d) Violet

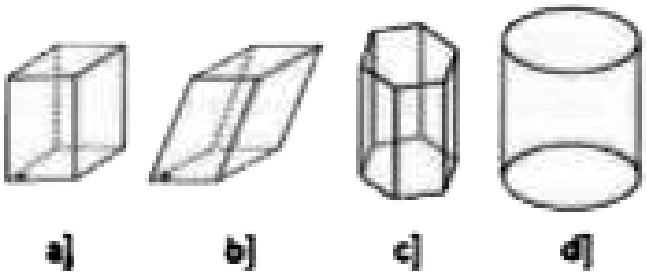
Watch Video Solution

8. In the prism shown in the below figure, identify the prism angle.



Watch Video Solution

9. Which of the followig solids are not prisms? Why ?



Watch Video Solution

10. Why do some clouds appear white while some appear grey ?

Watch Video Solution

11. Planet mercury has no atmosphere. What is the colour of its sky ?

Watch Video Solution

12. The sun appears red at sunrise and sunset. This is due to scattering of

A. longer wavelengths

B. shorter wavelengths

C. all wavelengths

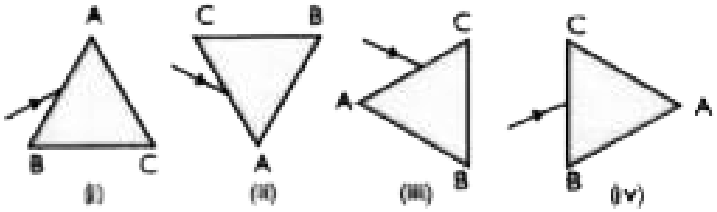
D. none of these

Answer:

Watch Video Solution

13. A prism ABC [with BC as base] is placed in different orientations. A narrow beam of white light is incident on the prism as shown in the figure. In which of the following cases, after dispersion, the third colour from the rop

corresponds to the colour of the sky ?



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20. In the spectrum of white light, which colour is deviated maximum ?

(a) Red (b) Yellow (c) green (d) Violet

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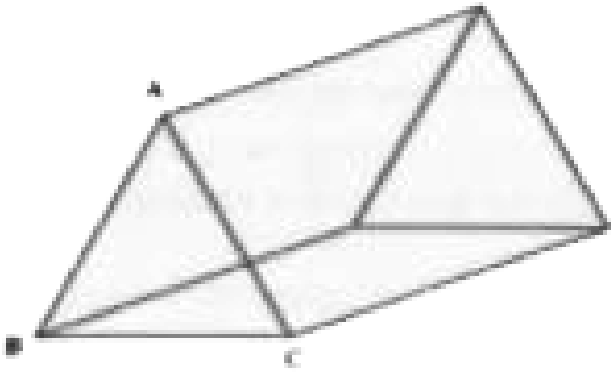
21. In the prism shown in the below figure, identify the prism angle.



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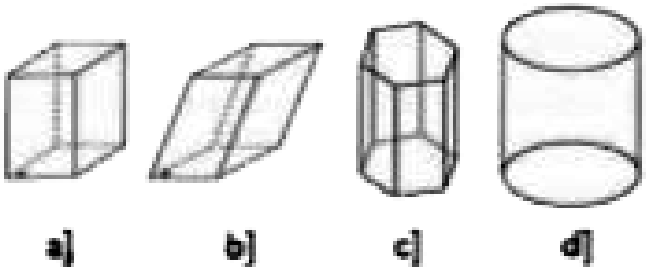
22. Which of the followig solids are not prisms? Why ?



a] b] c] d]

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23. Why do some clouds appear white while some appear grey ?

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24. Planet mercury has no atmosphere. What is the colour of its sky ?

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25. The sun appears red at sunrise and sunset. This is due to scattering of

A. longer wavelengths

B. shorter wavelengths

C. all wavelengths

D. none of these

Answer:

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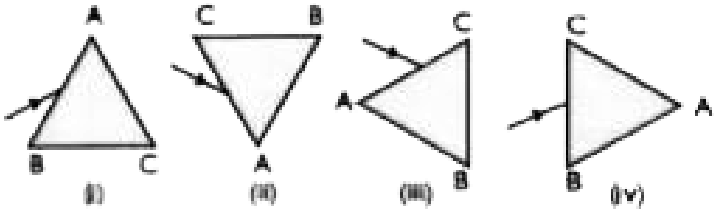
26. A prism ABC [with BC as base] is placed in different orientations. A narrow beam of white light is incident on the prism as shown in the figure. In which of the following cases, after dispersion, the third colour from the rop

corresponds to the colour of the sky ?



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