



PHYSICS

BOOKS - MODERN PUBLICATION

THE HUMAN EYE AND THE COLOURFUL WORLD

Example

1. The far point of a person suffering from myopia is 3 m from the eye. Find the power of

the corrective lens that will correct the vision.



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2. The near point of an old person is 50 cm from the eye. Find the power of the corrective lens.



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3. A person with a myopic eye cannot see object beyond of 1.5 m. what would be the

power of the corrective lens used to restore power vision?



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4. What is meant by power of accommodation of the eye?



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5. A person with 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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6. What is the far point and near point of human eye with normal vision?



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

A. cornea

B. iris

C. pupil

D. retina

Answer:



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8. 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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9. A person needs a lens of power -5.5 d for correcting his distant vision. For correcting his near vision he needs a lens of power $+1.5$ D.

What is the focal length of lens required for correcting (i) distant and (ii) near vision?



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10. A person needs a lens of power -5.5 d for correcting his distant vision. For correcting his near vision he needs a lens of power $+1.5$ D. What is the focal length of lens required for correcting (i) distant and (ii) near vision?



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11. 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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12. The near point of a hypermetropia eye is 1 m find the power of the lens required to correct this defect . Assume that near point of the normal eye is 25 cm



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



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14. Explain atmospheric refraction. Why do stars twinkle?



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15. Why does the sun appear reddish in the morning (as well as in evening)?



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16. Why does the sky appears dark instead of blue to an astronaut?



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17. A person needs a lens of power -4.5 D for correction of her vision.

What kind of defect in vision is she suffering from?



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18. A person needs a lens of power -4.5 D for correction of her vision.

What is the focal length of the corrective lens?



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19. A person needs a lens of power -4.5 D for correction of her vision.

What is the nature of the corrective lens?



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20. Why does the colour of the sky appear blue?



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21. What is meant by presbyopia ?



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22. How does the focal length of a glass lens change when blue light is replaced by red light. Give reasons.



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23. What will be the nature of image obtained in magnifying glass.



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24. What would be the colour of sky if earth had no atmosphere?



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25. A 14 years old boy cannot read question written on the black-board lying 5 m away from him. Name the eye defect he is suffering from.



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26. With the help of a labelled diagram describe the structure of lungs.



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27. A 14 year old student is not able to see clearly the questions written on a blackboard placed at a distance of 5 m from him.

Name the type of lens to correct this defect.



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28. What is the range of vision for normal eye?



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

Identify the kind of defects of vision he is suffering from. Give reason for your answer.



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30. How does the focal length of eye lens change when we shift from a distant object to a nearby object?



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Exercise

1. Describe

the function of Iris?



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2. What is meant by power of accommodation of the eye?



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3. A circle can be constructed with the help of a



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4. The far point of a person suffering from myopia is 4 m from the eye. Find the power of the corrective lens he will have to use in order to see distant objects?



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5. An old person has near point 100 cm. find the power of the corrective lens he will have to use?



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6. The near point of a defective eye is 75 cm from the eye. What is the power of the corrective lens which enables him to read a book kept at least distance of distinct vision.



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7. Write the function of each of the following parts of the human eye

Crystalline lens?



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8. Write the function of each of the following parts of the human eye

Crystalline lens?



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9. Describe

the function of Iris?



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10. Write the function of ciliary muscles in human eye.



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11. What is dispersion of light?



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12. What is leaching ? Explain with the help of an example.



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13. Name the front portion of human eye that sharply bulges out and is covered with a transparent and tough membrane.



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14. Name the circular diaphragm present in human eye.



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15. Name the hole present in Iris.



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16. What is the function of iris in human eye?



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





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18. What is far point ?



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19. Name the defect in which a human eye can see nearby objects distinctly but is unable to see distant objects distinctly.



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20. What is the other name given to old age hypermetropia?



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21. The phenomenon of splitting of white light into its constituent colours is called



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22. What is the cause of dispersion of light?



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23. Name the phenomenon of absorption of light and then re-radiating it in different directions.



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24. Why does the colour of the sky appear blue?



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25. Name the phenomenon responsible for advanced sunrise and delayed sun-set.



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26. The sun appears red at sun rise or sunset, why?



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27. Presbyopia is corrected by concave lens.

(True/False)



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28. The power of lens used to correct myopia

is positive. (True/False)



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29. The sky appears blue, because.



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30. Clouds look white because water droplets of clouds scatter all colours of light equally.

(True/False)



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31. Twinkling of stars is due to atmospheric:



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32. The sun is visible two minutes before sunrise and about two minutes sunset due to atmospheric refraction. (True/False)



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33. Planets twinkle on account of atmospheric refraction. (True/False)



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



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35. Fill ups

The ability of the eye lens to adjust its focal length is called.....of eyes and this is done with the help of..... .



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36. In human eye, image of an object is formed at



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37. The least distance of distinct vision is



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38. Fill ups

The defect of the eye due to which distant

objects cannot be seen distinctly is calledand this defect is corrected by using a.....lens.



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39. Fill ups

The defect of the eye due to which nearby objects cannot be seen distinctly is called.....and this defect is corrected by.....lens.



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40. Fill ups

A person suffering from myopia and hypermetropia uses.....lenses.



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41. Fill ups

Old age hypermetropia is called..... .



[Watch Video Solution](#)

42. The phenomenon of splitting of white light into its constituent colours is called



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43. Fill ups

The wavelength of.....colour of light is maximum and.....colour of light is minimum.



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44. Name the phenomenon of absorption of light and then re-radiating it in different directions.



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45. The intensity of light entering the eye is controlled by



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46. Fill ups

Hypermetropia is corrected bylens.



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47. Fill ups

.....is corrected by convex lens.



[Watch Video Solution](#)

48. Fill ups

Blue colour of the sky is due to theof light.



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49. Fill ups

The frequency of.....colour of light is maximum and.....is minimum.



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50. When you enter a cinema hall, you are unable to see the persons sitting nearby, but after a while you can see them. Explain.



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51. After watching a show of 12-3 pm when you come out of the cinema hall you feel dazzling light. But after a while, the intensity of light becomes normal automatically. Explain.



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52. The major convergence of rays reaching the eyes is done by

A. cornea

B. eye lens

C. vitreous humour

D. aqueous humour

Answer:



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53. Myopia is corrected by

- A. concave lens
- B. convex lens
- C. concave mirror
- D. convex mirror

Answer:



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54. Hypermetropia is corrected by

- A. concave lens
- B. convex lens
- C. concave mirror
- D. convex mirror

Answer:



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55. The intensity of light entering the eye is controlled by

A. pupil

B. ciliary muscles

C. vitreous humour

D. retina

Answer:



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56. A prism splits a beam of white light into its seven constituent colours. This is so, because

A. amplitude

B. speed

C. energy

D. none

Answer:



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57. Twinkling of stars is due to atmospheric:

A. reflection

B. atmospheric refraction

C. dispersion

D. scattering.

Answer:



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58. Ciliary muscles can change the focal length of eye lens. This phenomenon is responsible for

- A. accommodation
- B. persistence of vision
- C. astigmatism
- D. colour blindness

Answer:



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59. True or False :

A sensory nerve conducts nerve impulses from brain to muscles of the body.

- A. ciliary muscles
- B. optic nerves
- C. aqueous humour
- D. pupil

Answer:



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60. 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 could it be corrected?



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61. Write in one word or at most one sentence about the following
Mirrors used by dentists to examine teeth.



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62. Write in one word or at most one sentence about the following

The smallest distance, at which the eye can see objects clearly without strain.



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63. The far point of a myopic person is 80 cm. In front of the eye. What is the power of the lens required to enable him to see very distant objects clearly ?

In what way does the corrective lens help the person above? Does the lens magnify very distant objects? Explain.



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64. Why are danger signals red in colour? Give reason.



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65. Mention the type of mirrors used as rear view mirrors. List reasons to justify your answer in each case.



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66. What is meant by power of accommodation of the eye?



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67. State the symptom cause and the nature of the lens used to correct the following defect of vision. Presbyopia.



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68. Answer briefly: How does the eye regulation the amount of light that falls on the retina.



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69. At noon the sun appears white as

A. light is least scattered

B. all the colours of the white light are scattered away

C. blue colour is scattered the most

D. red colours is scattered the most

Answer:



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70. Which of the following is not the property of light?

A. Reflection

B. Refraction

C. dispersion

D. Deviation of electron in an electric field.

Answer:



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71. Twinkling of stars is due to atmospheric:

- A. dispersion of light by water droplets
- B. refraction of light by different layers of varying refractive indices
- C. scattering of light by clouds
- D. internal reflection of light by clouds

Answer:



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72. The sky appears blue, because.

A. blue light gets absorbed in the atmospheres

B. ultraviolet radiations are absorbed in the atmosphered

C. violet and blue lights get scatered more than lights of al other colours by the atmosphere

D. light of all other colours is scattered more than the violet and blue colour

lights by the atmosphere

Answer:



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73. Which of the following statements is correct regarding the propagation of light is different colours of white light in air?

A. Red light moves fastest

B. Blue light moves faster than green light

C. All the colours of the white light move with the same speed

D. Yellow light moves with the same speed as that of the red and the violet light.

Answer:



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74. The sun appears red at sun rise or sunset, why?

A. Dispersion of light

B. Scattering of light

C. Total internal reflection of light

D. Reflection of light from the earth.

Answer:



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75. The water in deeper sections of sea/ocean is much colder than that at the surface.

Discuss how can this difference in the temperature be exploited to obtain energy?

- A. the presence of algae and other plants found in water
- B. reflection of sky in water
- C. scattering of light by the sea
- D. absorption of light by the sea

Answer:



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

- A. crystalline lens
- B. outer surfact of the cornea
- C. iris
- D. pupil

Answer:



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77. Ciliary muscles can change the focal length of eye lens. This phenomenon is responsible for

- 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:



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78. 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:



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79. The colour of sky as seen from the moon, where there is no atmosphere, is :

A. Black

B. Blue

C. Orange

D. Red

Answer:



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80. A dichromatic light of wavelength 5600\AA and 6300\AA pass through a prism or crown glass, then:

A. deviation for both wavelength is same

B. both will emerge without deviation

C. deviation for wavelength 5600\AA is greater than deviation for wavelength 6300\AA .

D. deviation of wavelength 6300\AA is greater than deviation for wavelength 5600\AA .

Answer:



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81. Amount of light entering into the camera depends upon:

A. focal length of objective lens.

B. product of focal length and diameter of objective lens.

C. distance of objective from camera

D. aperature setting of the camera.

Answer:



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82. The far point of myopic person is 75 cm in front of the eye. The nature and power of the lens required to correct the problem, will be

- A. convex lens, 1.33 D
- B. concave lens, -1.33 D
- C. concave lens, +1.33 D
- D. convex lens, +1.33 D

Answer:



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83. What is meant by power of accommodation of the eye?

A. ciliary muscles

B. retina

C. pupil

D. blind spot

Answer:



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84. The SI unit of power is

A. cm

B. cm^{-1}

C. m

D. D

Answer:



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85. Myopia is corrected by

- A. convex lens
- B. concave lens
- C. convex mirror
- D. concave mirror

Answer:



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86. Two lenses have powre $-3D$ and $+1D$ respectively are put together. The powr of the combination of lens is

A. $-2D$

B. $2D$

C. $-4D$

D. $4D$

Answer:



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87. The fluid present between eye lens and retina is called

A. vitreous humour

B. aqueous humour

C. water

D. salty water

Answer:



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88. The wavelength of violet coloured light is

A. 4000\AA

B. 48000\AA

C. 5800\AA

D. 5800\AA

Answer: 7000\AA



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89. Which colour is at the lower end of the visible spectrum which is formed by passing white through an equilateral prism

A. Red

B. Blue

C. Green

D. Violet

Answer:



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90. Cataract is correct by

A. placing a concave lens in front of eye

B. placing a convex lens in front of eye

C. placing a cylindrical lens in front of eye

D. replacing the eye lens by another artificial lens.

Answer:



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91. Name the phenomenon responsible for advanced sunrise and delayed sun-set.

- A. scattering of light
- B. reflection of light
- C. dispersion of light
- D. atmospheric refraction.

Answer:



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92. True or false

The human eye lens is concave?



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93. True or false

The far point of human eye to 25 cm.



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94. True or false

Pupil of human eye is small hole in iris.



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95. True or false

Long sightedness is also called myopia.



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96. True or false

Danger signals are red because red colour is scattered the least.



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97. Fill ups

The colour of white light at the upper end of visible spectrum is..... .



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98. The sky appears blue, because.



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99. The bluish colours of water in deep sea is due to



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100. Myopia is corrected by



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101. A 14 years old boy cannot read question written on the black-board lying 5 m away from him. Name the eye defect he is suffering from.



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102. What is the function of ciliary muscles in the eye?



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103. Red colour is used for danger signals because of its.

- A. it is scattered the least
- B. it has longer wavelength
- C. it can travel through large distance
- D. all of these

Answer:



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104. Image formed by a myopia eye without corrective lens at a

- A. retina
- B. before retina
- C. after retina
- D. on cornea

Answer:



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105. Explain what is observed when a beam of light is passed through colloidal solution of arsenious sulphide? Give the name of the phenomenon also.

A. dispersion

B. refraction

C. reflection

D. scattering.

Answer:



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106. A person cannot see distinctly objects kept beyond 2 m. This defect can be corrected by using a lens of power

A. $+0.5D$

B. $-0.5D$

C. $+0.2D$

D. $-0.2D$

Answer:





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