PHYSICS

BOOKS - VGS BRILLIANT PHYSICS (TELUGU ENGLISH)

HUMAN EYE AND COLOURFUL WORLD

Review Of Your Previous Knowledge

1. What is the function of lens in human eye ?

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2. How does it help to see objects at long distances and short distances ?

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3. How does it possible to get the image at the same distance on the retina ?

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4. Are we able to see all objects in front of our eye clearly?

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5. How do the lenses used in spectacles correct defects of vision.

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Textual Lesson Part Improve Your Learning Conceptual Understanding

1. How do you correct the eye defect Myopia ?

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2. Explain the Myopia using the diagram.

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3. Explan the correction of the eye defect Hypermetropia.

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4. Explain the Hypermetropia with the help of diagram.

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5. How do you find experimentally the refractive index of material of a prism ?

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6. Write the experimental procedure in finding the refractive index of a prism.

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7. Explain the formation of a rainbow.

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8. Explain the formation of a rainbow.

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9. Explain briefly the reason for the blue of the sky.

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Textual Lesson Part Improve Your Learning Asking Questions And Making Hypothesis

1. Assertion(A) : Blue colour of sky appears due to scattering of light.

Reason(R): Blue colour has shortest wavelength among all colours of white light.

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Textual Lesson Part Improve Your Learning Experimentation And Field Investigation

1. What are the material required to produce a rainbow in your laboratory?

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2. Define the Dispersion of light .

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3. Describe an activity for dispersion of light :

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Textual Lesson Part Improve Your Learning Information Skills And Projects

1. Prisms are used in binuculars. Collect information why prisms are used in binoculars.

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Textual Lesson Part Improve Your Learning Communication Through Drawing Model Making

1. Incident ray on one of the face (AB) of a prism and emergent ray from the face AC are given in figure. Complete the ray diagram.

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Textual Lesson Part Improve Your Learning Appreciation And Aesthetic Sense Values

1. How do you appreciate the role of molecules in the atmosphere for the blue colour of the sky ?

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2. How do you appreciate the working of cillary muscles in the eye ?

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Textual Lesson Part Improve Your Learning Application To Daily Life Concern To Biodiversity

1. Why does the sky sometimes appear white ?

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2. If a white sheet of paper is stained with oil, the paper turns transparent. Why ?

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3. The focal length of a lens suggested to a person with Hypermetropia is 100cm. Find the distance of near point and power of the lens.

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4. A person is viewing an extended object. If a converging lens is placed in front of his eye, will he feel that the size of object has increased ? Why ?

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Fill In The Blanks

1. The eye lens can be change its focal length due to working of _____ muscles.

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2. The power of lens is 1 D then focal length is _____.

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3. Myopia can be corrected by using _____ lens.

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4. Hypermetropia can be corrected by using _____ lens.

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5. In minimum deviation position of prism, the angle of incidence is equal to angle of _____.

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6. The splitting of white light into different colours (VIBGYOR) is called _____.

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7. During refraction of light, the character of light which does not change is _____.

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Multiple Choice Questions

1. The size of an object as percieved by an eye depends primarily on

A. actual size of the object

B. distance of the object from the eye

C. aperture of the pupil

D. size if the image formed on the retina

Answer: B

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2. When objects at different distances are seen by the eye which of the following remains constant ?

A. focal length of eye-lens

B. object distance from eye-lens

C. the radii of curvature of eye-lens

D. image distance from eye-lens

Answer: D

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3. During refraction _____ will not change.

A. wavelength

B. frequency

C. speed of light

D. all of above

Answer: B

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4. A ray of light falls on one of the lateral surfaces of an equilateral glass prism placed on the horizontal surface of a table as shown in figure . For minimum deviations of ray, which of the following is true ?

A. PQ is horizontal

B. QR' is horizontal

C. RS' is horizontal

D. Either 'PQ' or 'RS' is horizontal

Answer: B

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5. Far point of a person is 5 m. In order that he has normal vision what kind of spectacles should he use ?

A. concave lens with focal length 5 m

B. concave lens with focal length 10m.

C. convex lens with focal length 5 m

D. convex lens with focal length 2.5 mm

Answer: A

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6. The process of re-emission of absorbed light in all directions with different intensities by the atom or

molecule is called _____.

A. scattering of light

B. dispersion of light

C. reflection of light

D. refraction of light

Answer: A

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Try These

1. Explain two activities for the formation of artificial rainbow.

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2. What are the material required to produce a rainbow in your laboratory?

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3. Write the formula for the refractive index of the prism.

Watch Video Solution

4. Write the formula for the refractive index of the prism.

Watch Video Solution

5. Light of wavelength λ_1 enters a medium with refractive index n_2 from a medium with refractive index n_1. What is the wavelength of light in second medium ?

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6. Assertion(A): The refractive index of a prism depends only on the kind of glass of which it is made of and the colour of light.

Reason(R): The refractive index of a prism depends on the refracting angle of the prism and the angle ofminimum deviation.

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true and R is not the correct explanation of A.

C. A is true but R is false.

D. Both A and R are false.

Answer: (C) A is true , but 'R' is false

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7. Eye is the only origin of visuallise the colourful world around us. This is possible due to accomodation of eye lens. Prepare a six line stanze expressing your wonderful feelings.

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8. Glass is known to be transparent material. But ground glass is opaque and white in colour. Why ?

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9. A light ray falls on one of the faces of prism at an angle 40° so that it suffers angle of minimum derivation of 30° . Find the angle of prism and angle of refraction at the given surface.

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Activities

1. Describe an activity to find the least distance of distinct vision.

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2. How do you measure the angle of vision ?

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3. Demonstrate scattering by an experiment.

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4. "The size of the atom (molecule) are caused the colour of the substance ". How do you prove it ?

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Think And Discuss 1 Mark Question

1. Can you imagine the shape of rainbow when observed during travel in an airplane ?

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Questions Given In The Lesson 1 Mark Questions

1. How can we get same image distance for various positions of objects ?

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2. Can you answer above question using concepts of refraction through lenses ?

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3. How does eye lens change its focal length ?

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4. What is the role of ciliary muscles in the eye ? Write the answer in one or two sentences only.

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5. How does this change (eye lens changes its focal lengths) take place in eye ball ?

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6. Does eye lens form a real image or virtual image ?

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7. Is there any limit to change of focal length of eye lens ?

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8. What are the maximum and munimum focal lengths of the eye lens ?

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9. What happens if eye lens is not able to adjust its focal length ?

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10. What happens if the focal length of eye lens is beyond the range of 2.5 cm to 2.27 cm ?

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11. What can we do to correct myopia ?

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12. What happens when the eye has a minimum focal length greater than 2.27 cm ?

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13. Have you ever observed details in the prescription ?

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14. You might have heard people saying "my sight is increased or decreased". What does it mean ?

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15. What do you mean by power of lens ?

Watch Video Solution

16. How could the white light of the sun gives us various colours of the rainbow ?

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17. What happens to a light ray when it passes through a transparent medium bounded by plane surfaces which are inclined to each other ?

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18. What is a prism ?

Watch Video Solution

19. What is the shape of the outline drawn for a prism ?

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20. How do you find angle of deviation ?

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21. What do you notice from the angle of deviation ?

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22. Can you draw a graph between angle of incidence and angle of deviation ?

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23. Is there any relation between the angle of incidence (i) and angle fo emergence (x) and angle of deviation (d) ?

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24. In an activity-3, we noticed that light has choseb different paths. Does this mean that te refractive index of the prism varies from colour to colour ?

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25. Is the speed of light of each color different ?

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26. Can you guess now, why light splits into different colours when it passes through a prism ?

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27. Can you give an example in nature, where you observe colours as seen in activity 3 ?

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28. When do you see a rainbow in the sky ?

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29. Can we create a rainbow artificially ?

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30. Why is the sky blue ?

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31. What is scattering ?

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Questions Given In The Lesson 2 Mark Questions

1. Can you guess the reason why sun does not appear red during noon hours ?

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2. Why do the values of least distance of distinct vision and angle of vision change with person and age ?

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3. How does the image formed on retina help us to precieve the object without change in its shape, size and colour ?

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4. How can you decide the focal length of the lens to be used to correct myopia ?

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5. How can you decide the focal length of convex lens to be used ?

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6. Doctor advised to use 2D lens. What is the focal length of it ?

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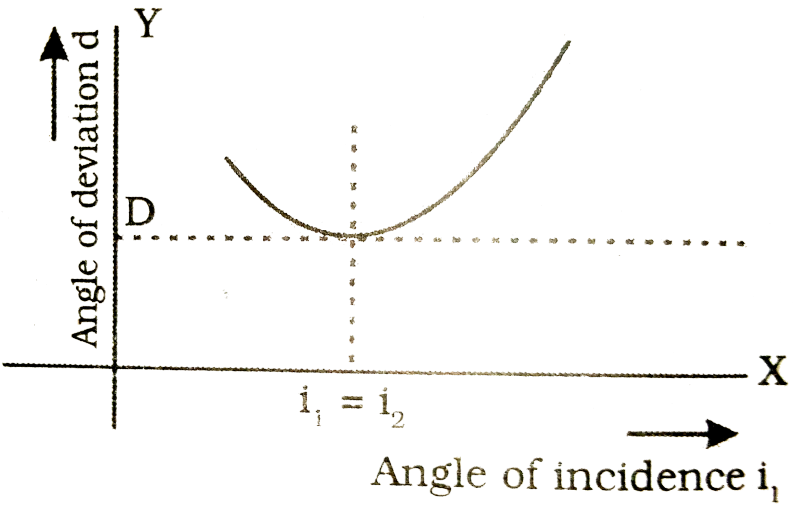
7. From the graph, can you find the minimum of the angle of deviation ?



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8. Does the (light passing through a prism) split into more colours ? Why ?

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9. Why is that the sky appears white sometimes when you view it in certain direction on hot days ?

View Text Solution

10. Do you know the reasons for appearance the red colour of sun during sunrise and at sunset ?

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11. Sun appears red in colour during sunrise and sunset. Give reason.

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12. What are the maximum and munimum focal lengths of the eye lens ?

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13. Why does the light dispersed by the raindrop appear as a bow ?

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Questions Given In The Lesson 4 Mark Questions

1. How can we find the maximum and minimum focal lengths of the eye lens ?

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Creative Questions For New Model Examination Section I 1 2 Marks Questions

1. In which situation , the value of focal length of the lens is equal to the value of the image distance ?

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2. What is the value of least distance of distanct vision for children below 10 years ?

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3. Your father cannot see the objects at the distance of 10 cm from the eyes clearly. What is his vision defect ?

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4. What is the value of angle of vision of human beings ?

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5. Which of the following object an seen by human beings ?

A. An object making angle with eye is 60°.

B. An object making angle with eye is more than 60°.

C. An object making angle with eye is less than 60°.

D. A and C

Answer: D

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6. Match the following .

a) Angle of vision	i) 2.5 cm
b) Least distance of distinct vision	ii) 25 cm
c) Maximum distance between eye lens and retina	iii) 60°

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7. What is the shape of eye ?

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8. Where does aqueous humour present in the eye?

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9. Pupil is

A. diaphragm

B. liquid

C. transparent layer

D. nothing

Answer: D

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10. A: Pupil appears black in colour.

R: Any light falling on it goes into the eye and there is no chance of light coming back to the outside.

A. 'A' and 'R' are correct, 'R' supports 'A'.

B. 'A' and 'R' are correct, 'R' does not support 'A'.

C. 'A' is correct but 'R' is wrong.

D. A is incorrect but 'R' is correct.

Answer: A

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11. When does pupil expand ?

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12. Which part is called as "variable aperture" in our eye ?

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13. What is the distance between the lens and retina of eye ?

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14. For a eye lens, which quantity is fixed ?

A. Object distance

B. image distance

C. forcal length

D. above all

Answer: B

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15. Which one helps to change the radii of curvature of the eye lens ?

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16. To which part of the eye, ciliary muscles are attached ?

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17. The eye lens is

A. Convex lens , hard in the middle , become soft towards outer edge

B. Convex lens, soft in the middle, become hard towards outer edge.

C. Concave lens, hard in the middle, become soft towards outer edge.

D. Concave lens, soft in the middle, become hard towards outer edge.

Answer: A

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18. Arrange the parts in one order from the front of the eye.

Lens, aqueous humour, retina, iris, cornea

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19. How do ciliary muscles respond, when the eye is focussed on a distant object ?

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20. If the ciliary muscles are strained, what would be the position of the object?

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21. What is the name of the process of adjusting focal length of eye lens ?

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22. What type of image is formed by eye lens ?

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23. Where is rods cones are located in our eye ?

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24. Which receptors identify the colour ?

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25. Which receptors identify the intensity of light?

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26. Which part carries the light signals from retina to brain ?

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27. How many number of receptors are there in retina ?

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28. What are the maximum and munimum focal lengths of the eye lens ?

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29. Match it

a) $f_{\max}$ of eye lens	i) object is at 25 cm
b) $f_{\min}$ of eye lens	ii) object is at infinity
	iii) object is at 1 cm

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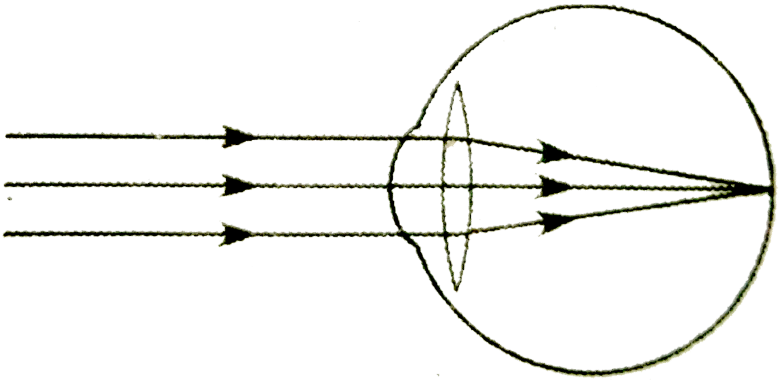

30.

From the above figure, where is the object ?

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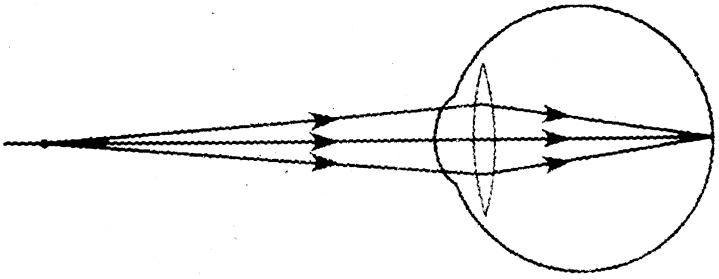

31.

From the given figure, what is the focal length of eye lens ?

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32. What is the name of the process of adjusting focal length of eye lens ?

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33. Some people cannot see objects at long distance, but can see near objects clearly What is his vision defect ?

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34. Which of the following shows myopia ? $f_{\max}$ of eye lens is:

A. 2.5 cm

B. 2.27 cm

C. 2.7 cm

D. N/A

Answer: B

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35.

What is the vision defect in the given figure ?

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36. Which lens can be used to correct the vision defect given in the above figure ?

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37. What is point 'M' ? (In the above figure)

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38. Myopia patients cannot see the objects

A. beyond the far point

B. on the far point

C. before the far point

D. N/A

Answer: A

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39. Which lens can bring the image of the object kept beyond far point, between the far point and the point of least distance of distinct vision ?

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40. Write a formula to find focal length of a bi-concave lens, if distance of far point is given.

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41. $f = -D.$

What does negative sign indicate in the above formula ?

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42. For an object at infinite distance, what do you substitute for 'u' in the formula $\frac{i}{f} = \frac{1}{v} - \frac{1}{u}$?

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43. Which defect of vision does occur, when the eye has a minimum focal length greater than 2.27 cm ?

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44. Which vision defect is called as "far sightedness" ?

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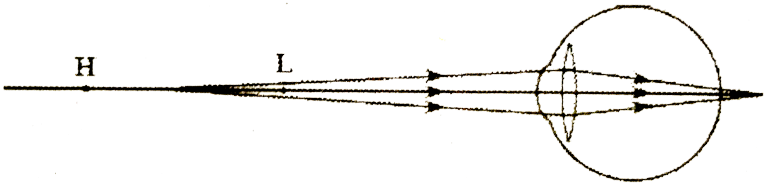

45.

Name the vision defect found in the figure.

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46. What is represented by 'H', given in the above figure ?

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47. Which lens is used to rectify the vision defect, hypermetropia ?

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48. What is the focal length of bi-convex lens to use to correct a hypermetropia in terms of near point 'd'?

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49. What is the vision defect, when the ability of accommodation of the eye usually decreases with agening ?

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50. Presbyobia means

A. myopia

B. hypermetropia

C. either myopia (or) hypermetropia

D. either myopia (or) hypermetropia (or) both

Answer: D

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51. A person is suffering from presbyopia which type of lens is prefarable ?

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52. Ramesh used spectacles for presbyopia. His spectacles consists of

A. Concave lens at upper portion and convex lens at lower portion.

B. Concave lens at lower portion and convex lens at upper portion.

C. N/A

D. N/A

Answer: A

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53. In which terms, the degree of convergence or divergence of light ray that can be achieved by a lens is expressed ?

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54. If the focal length of a lens fis in cm, then write the formula of power of lens.

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55. What is units of power of lens ?

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56. Doctors advised to use 2D lens. What is its focal length ?

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57. A lens has focal length of 50 cm. What is its power ?

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58. How many triangular bases is there for a glass prism ?

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59. What is called the angle between the emergent ray and normal of a prism ?

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60. What is called the angle between the incident ray and emergent ray of a prism ?

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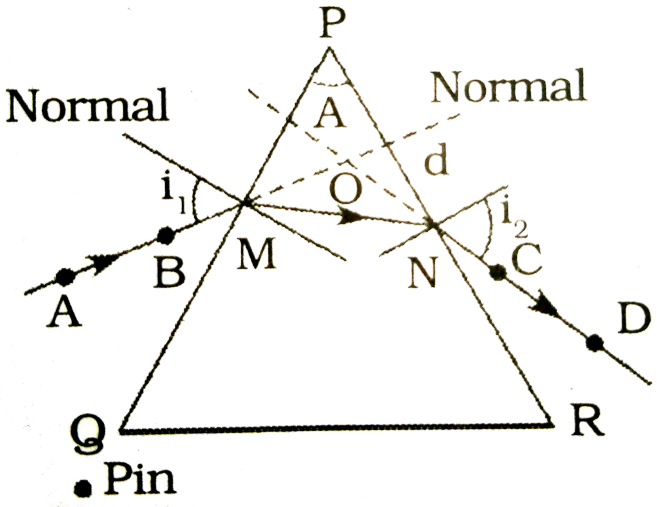

61.

Which of the angle of deviation ?

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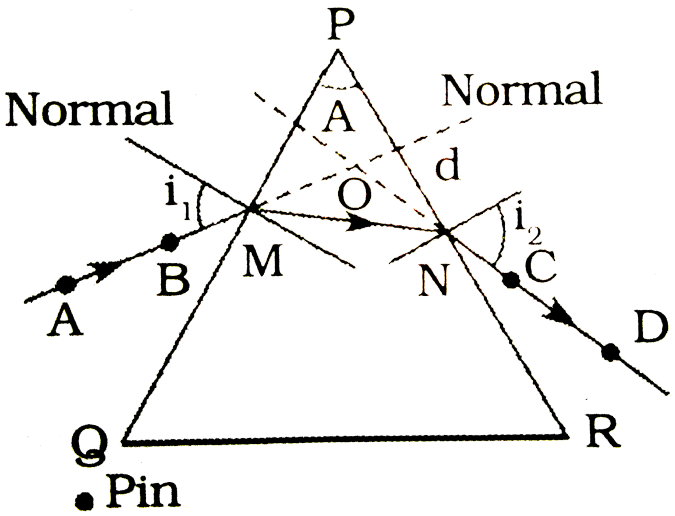
62.



Which is the angle of the prism ?

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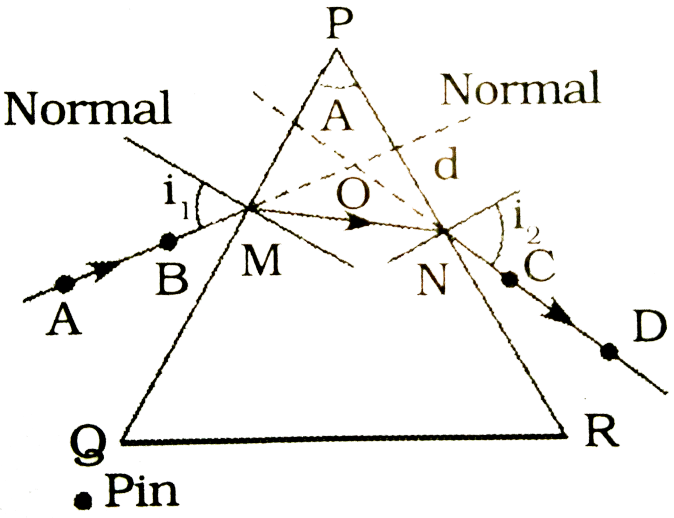
63.



What are $\angle i_1$ and $\angle i_2$?

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64. At angle of minimum deviation, what is the relation between angle of incident (i_2) /

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65. What is the relation between angle of prism (A), angle of deviation (d), angle of incident (i_1) and angle of emergence (i_2) ?

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66. Write the formula for the refractive index of the prism.

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67. Write the formula for the refractive index of the prism.

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68. A prism with an angle A = 60° produces an angle of minimum deviation of 30°. Find the refractive index of material of the prism.

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69. Write one use of a prism .

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70. Is it splitting of white light into colours explained by using ray theory ?

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71. Expand VIBGYOR.

Watch Video Solution

72. What is called the splitting of light into different colours ?

Watch Video Solution

73. Which colour of light can split into VIBGYOR?

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74. Which colour of light has shortest wavelength ?

Watch Video Solution

75. Which colour of light has longest wavelength ?

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76. a) Speed of light is constant in vacuum.

b) Speed of light depends on the wavelength of light when it passes through a medium.

Which one is correct ? or both ?

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77. How does refractive index changes, when wavelength of light increases ?

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78. In which colour, refractive index of glass is high ?

A. Blue

B. Yellow

C. Orange

D. does not change

Answer: C

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79. Which property of wave does not change due to refraction ?

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80. How does red colour change while passing through a prism ?

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81. How does colour of light changes, when passed through any transparent medium ?

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82. What is the relation among speed of wave (v), wavelength (λ) and frequency (f) ?

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83. In the equation, v = fm, which factor changes, if speed of light changes ?

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84. Give one example to light dispersion.

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85. Colour of light changes if we change

A. Frequency

B. wavelength

C. both

D. N/A

Answer: A

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86. Abhi observed different colours on the wall, when he was washing his car. What would be cause for it?

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87. What is the maximum angle between incoming and outgoing rays through a water drop to form bright rainbow ?

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88. In a rainbow

a) observer can see a single colour from a drop.

b) observer can see all colours from a drop.

Which is correct ?

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89. To observe violet colour in a rainbow the angle between a sun beam and light sent back by a drop should be

A. 40°

B. 42°

C. 0°

D. $40^\circ - 42^\circ$

Answer: A

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90. What is the shape of a rainbow ?

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91. Which colour appears at the outermost layer of the cone shaped rainbow ?

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92. How many times refraction takes place at a drop of water when rainbow is formed?

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93. Formation of rainbow involves

A. refraction

B. total internal reflection

C. dispersion

D. above all

Answer: D

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94. What is called the energy of light passing through unit area of plane in one second ?

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95. When does intensity of scattered light is maximum ?

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96. How do you call the atoms or molecules which are undergone scattering?

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97. How does sky appears when look at the sky in a direction perpendicular to the direction of the sunrays

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98. In which phenomenon atoms absorbs light and vibrates ?

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99. What are the scattering centres responsible for the blue of the sky?

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100. What are responsibility for that the sky appears white sometimes in hot days?

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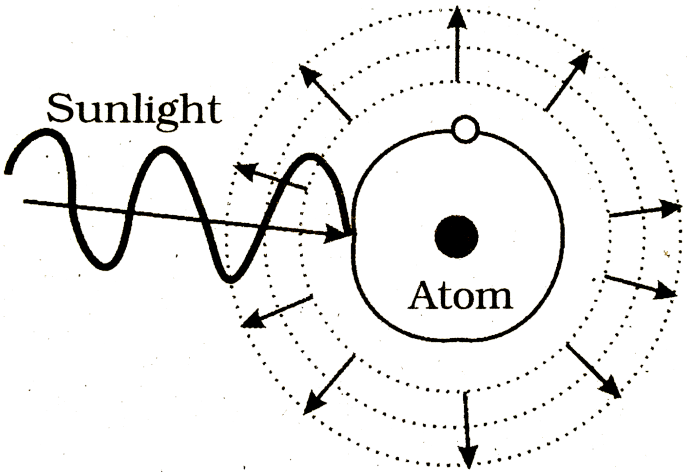

101. Name the phenomena showed in the given figure.

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102. What is called a hypo ?

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103. Which colour scatters less in the atmosphere ?

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104. You can observe the red colour of Sun during Sunrise and Sunset. Which colours scatter more ?

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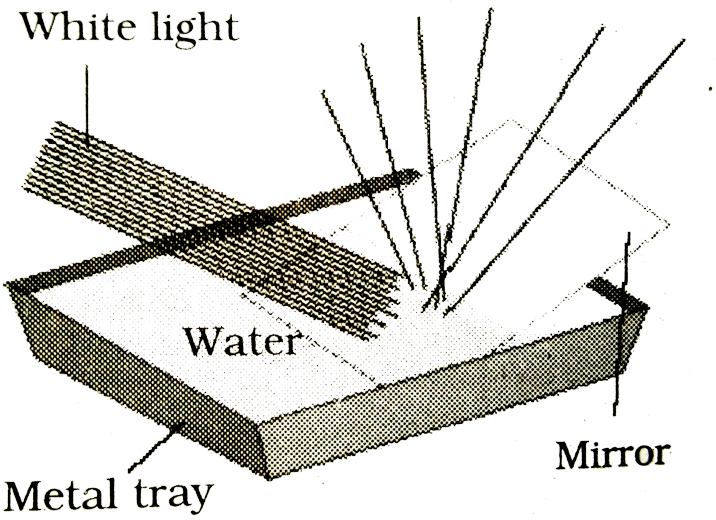
105. Which colour scatters less in the atmosphere ?

Watch Video Solution



106.

In the above experiment , which phenomenon do you noticed ?

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107. Write a material , which is very useful to show dispersion of light ?

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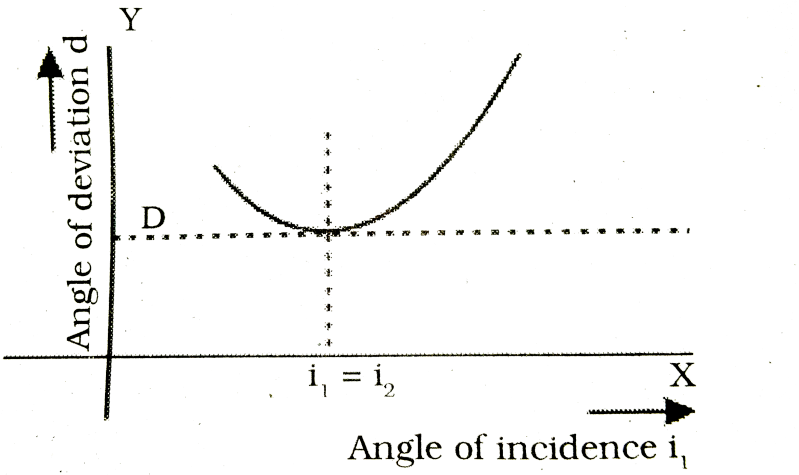

108.

What is the main purpose of the given graph ?

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109. Draw a lens whch is useful to correct myopia ?

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110. Draw a lens which is useful to correct hypermetropia ?

Watch Video Solution

111. Draw a diagram of a prism .

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112. Draw the diagram of the shape of the eye lens .

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113. Uma cannot able to see the nearer objects clearly, but can see the far objects which lens is very useful to correct

his vision defect ?

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114. Your father cannot able to read a newspaper clearly.Which type of lens do you suggest him ?

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115.

Person	Power of lens
A	– 2D
B	+ 2D
C	– 2D, + 2D

Which person suffering from myopia ?

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116.

Person	Power of lens
A	– 2D
B	+ 2D
C	– 2D, + 2D

Which one suffering from preshyopia ?

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117.

Person	Power of lens
A	– 2D
B	+ 2D
C	– 2D, + 2D

What is the vision defect of person 'B'?

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118.

Person	Power of lens
A	– 2D
B	+ 2D
C	– 2D, + 2D

Whois using only bi-convex lens ?

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119.

Person	Power of lens
A	– 2D
B	+ 2D
C	– 2D, + 2D

Who can see nearer objects clearly ?

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120.

Person	Power of lens
A	– 2D
B	+ 2D
C	– 2D, + 2D

Who is using bifocal lens?

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121. f=-100 cm. This is written by an optician.

Which type of lens is prescribed ?

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122. f=-100 cm. This is written by an optician.

How much max. distance can see the patient ?

Watch Video Solution

123. f=-100 cm. This is written by an optician.

What is the power of lens ?

Watch Video Solution

124. f=-100 cm. This is written by an optician.

What is the vision of defect of the patient ?

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Creative Questions For New Model Examination Section Ii 1 Marks Questions

1. What is the relation between Power and Focal length of the lens ?

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2. Write the reason for Sun appears red during the Sun-rise and Sun-set.

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3. What do you mean by power of lens ?

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4. What physical quantity can be found in an experiment done with prism ?

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5. What is the cause of Presbyopia ?

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6. Suggest reasons for the phenomenon associated with the following. The sky appearing blue.

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7. Draw a ray diagram to show the angle of deviation when a ray of light passes through a glass prsim.

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8. Draw the diagram of a lens which will be recommended by an eye doctor to a long - sighted patient.

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9. $+50$ cm focal length bi-convex lens is recommended to correct the defect of vision of a man. Find the power of the lens.

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10. What happens if the eye lens of a person cannot accommodate its focal length more than 2.4 cm ?

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11. A person is unable to see distant objects. Show the defect of vision of the person with the help of ray diagram.

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Creative Questions For New Model Examination Section Ii Conceptual Understanding

1. What do you mean by least distance of distinct vision ? What is its value?

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2. What is the angle of vision ?

Watch Video Solution

3. Which part of the eye acts as variable aperture for entry of light into the eye .

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4. What is the role of rods and cones in the human eye?

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5. What do you mean by 'accommodation of eye lens'?

Watch Video Solution

6. What is myopia ? How is it corrected ?

Watch Video Solution

7. What is 'far point' ?

Watch Video Solution

8. What is hypermetropia ? How can it be corrected ?

Watch Video Solution

9. What is near point ?

Watch Video Solution

10. What is the cause of Presbyopia ?

Watch Video Solution

11. What is power of lens ?What are its units?

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12. What is dispersion ?

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13. Define intensity of light.

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14. What is the scattering of light ?

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15. A short - sighted person may read a book without spectacles. Comment.

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16. What is persistance of vision ?

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17. Why do some people can't able to identify some colours ?

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18. Which colour of light bends the most and the least ?

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19. Write the relation between intensity of scattered light (I) and wavelength (λ) ?

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20. Define the Incident ray with respect to a prism.

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21. Define the Normal terms with respect to a prism

Watch Video Solution

22. Define the Angle of incidence with respect to a prism.

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23. Define Emergent ray with respect to a prism.

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24. Define Angle of emergence with respect to a prism.

Watch Video Solution

25. Define the Angle of the prism with respect to a prism.

Watch Video Solution

26. Define the Angle of deviation with respect to a prism.

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27. A prism with an angle A = 60° produces an angle of minimum deviation of 30°. Find the refractive index of material of the prism.

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28. A convex lens and concave lens of focal length +20 cm and -30 cm respectively . Then find the power of each lens. Find the focal length of combined lens. And find the combined power of the lenses (+5D,-3.3D, +60 cm , + 1.7 D)

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Creative Questions For New Model Examination Section Ii Asking Questions And Making Hypothesis

1. Why does it takes sometimes to see objects in a dim room when we enter the room from bright sunligth outside ?

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2. Will a star appear to twinkle if seen from free space (1 cm say moon) ?

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

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

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5. When a monochromatic light passes through a prism will it show dispersion ?

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6. What happens if focal length of the eye lens does not change ?

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7. Can anybody see the objects which are situated at the distance of 8 cm from the eye ?

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8. Is there any lens which can form the same image distance from various positions of object ?

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9. "Pupil in the eye pupil acts as a variable aperture". To make understand the above concept prepare two questions to ask your friend.

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10. Write the consequencies if there is no flexibility in the eye lens.

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Creative Questions For New Model Examination Section Ii Experimentation And Field Investigation

1. Write the material required in finding the refractive index of a prism.

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2. What are the material required to produce a rainbow in your laboratory?

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Creative Questions For New Model Examination Section Ii Information Skills And Projects

1. A person was suffering from myopia. Then fill the table with suitable answers.

S.No.	Statement	Yes/No
1.	He can see far objects.	
2.	He can rectify his problem by using biconvex lens.	

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2. Some lenses are given. Pick among them and write in the blank boxes.

Lens :

Code : A B C D E

S.No.	Vision defect	Code	Name of the lens
1.	Myopia		
2.	Hypermetropia		

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Creative Questions For New Model Examination Section Ii Communication Through Drawing Model Making

1. Draw the diagram of a lens which will be recommended by an eye doctor to a short sighed patient.

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2. Draw a diagram for the given situation.

"when the object is at infinity , the parallel rays from the object falling on the eye lens are refracted and they form a point sized image on retina."

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Creative Questions For New Model Examination Section Ii Appreciation And Aesthetic Sense Values

1. "To look at the twinkling of stars is a wonderful experience". How its happening ?

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2. Write the importance of "Graph" in finding the refractive index of prism.

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3. How do you appreciate the "Eye Donor" ?

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Creative Questions For New Model Examination Section Ii Application To Daily Life Concern To Biodiversity

1. Have you seen a rainbow in the sky after rain ? How it has formed?

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2. "Sky aooears dark to passengers flying at very high altitudes" why ?

Watch Video Solution

3. Why is danger signals are red ?

Watch Video Solution

4. Which colour is best for school busses ?

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5. A short sighted person cannot see clearly beyond 2m. Caclulate the power of lens required to correct his vision.

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6. Why do we use lenses in spectacles to corret defects of vision?

Watch Video Solution

7. A convex lens of power 4 D is placed at a distance of 40 cm from a wall . At what distance from the lens should a candle be placed so that its image is formed on the wall ?

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8. The focal length of the convex lens is 10m . What is its power ?

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9. The power of lens is +2.5D . What kind of lens is it ? And what is its focal length ?

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10. The far point of a myopic person is 80 cm in front of the eye . What is the natuure and power of the lens required to correct the defect ?

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11. The near point of a Hypermetropic eye is 1 m. What is the nature and powe of the lens required to correct this

defect ? (The near point of the normal eye is 25 cm)

A.

B.

C.

D.

Answer: Convex lens +3.0 D

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Creative Questions For New Model Examination Section Iii 2 Marks Questions

1. How do you appreciate the working of iris in the eye ?

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2. What happens, if Ciliary muscles do not perform contraction and expansion ? Guess and write .

Watch Video Solution

3. Write any two situations to observe dispersion of light in your daily life.

Watch Video Solution

4. How do you appreciate the role of molecules in the atmosphere for the blue colour of the sky ?

Watch Video Solution

5. In which conditions does a raindow form ? Why ?

Watch Video Solution

6. Least distance of distinct vision of a person is observer as 35 cm. What lens is useful for him to see his surrondings clearly? Why ?

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7. Draw the ray daigram , showing the correction of defect of vision hypermetropia by using a convex lens.

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Watch Video Solution

8. Write the material that you use to find out the value of refractive index of a prism. What is the necessity of the graph in this experiment ?

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9. Draw a ray diagram showing the correction of myopia eye defect .

Watch Video Solution

10. What happen if dispersion and scattering of light do not occur ?

Watch Video Solution

11. When Mohan viewed white light through a transparent scale, he observed some colors. Predict and write the phenomenon involved in his observation.

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12. A boy who is suffering from eye defect has been given a prescription as -2D. Based on the information given, answer the question.

Identify the eye defect he is suffering .

Watch Video Solution

13. A boy who is suffering from eye defect has been given a prescription as -2D. Based on the information given, answer the question.

Write the nature and focal length of the lens.

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Creative Questions For New Model Examination Section Iii Conceptual Understanding

1. Two observers standing apart from one another do not see the "same" rainbow . Explain .

Watch Video Solution

2. How do we see colours ?

Watch Video Solution

3. What is the role of rods and cones in the human eye?

Watch Video Solution

4. Write the differnce between "Myopia" and Hypermetropia".

Watch Video Solution

5. Define the Prism .

Watch Video Solution

6. Define the Dispersion of light .

Watch Video Solution

7. What is the scattering of light ?

Watch Video Solution

8. Write the different characteristics of red colour and violet colours in dispersion of light.

Watch Video Solution

9. How does eye lens change its focal length ?

Watch Video Solution

10. How does eye change its focal length take place in the eye ball ?

Watch Video Solution

Creative Questions For New Model Examination Section Iii Asking Questions And Making Hypothesis

1. What will happen if there were no cones and rods in the eye ?

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2. YouR friend is not able to differentiate myopia and hypermetropia .How can you explain him by posing questions ? Write the questions.

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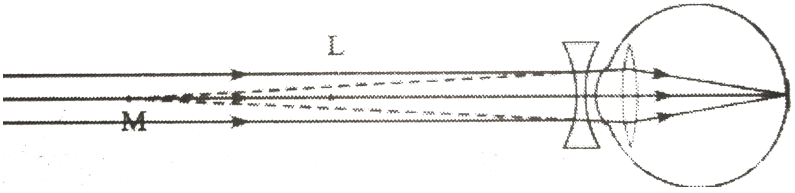
3. By observing the give diagram . Hemanth got some doubts in his mind. What would be those doubts ?



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4. Saritha has been using spectacles. How can you recognise her vision defect by observing her spectacles ?

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5. When we see the eyes of a person through the lenses of spectacles, work by him, they looked small in size ?

What types of lens are they ?

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6. When we see the eyes of a person through the lenses of spectacles, work by him, they looked small in size ?

What is the vision defect ?

Watch Video Solution

Watch Video Solution

7. What will happen if there is no dispersion of light ?

Watch Video Solution

8. You want to know the vision defect of your friend. Frame some questions to ask him/her ?

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9. Kishore wore spectacles. When you saw through his spects the size of his eyes seemed bigger than their original size.

Which lens did he use ?

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10. Kishore wore spectacles. When you saw through his spects the size of his eyes seemed bigger than their original size.

Explain that defect of vision (with the help of a diagram)

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11. Ravi did not understand the phrase 'Accommodation of eye lens' ? Then, Rithvik explained it by asking several questions. What would be those quesitons ?

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Creative Questions For New Model Examination Section Iii Experimentation And Field Investigation

1. How can you prove that white light is a mixture of all colours ?

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Creative Questions For New Model Examination Section Iii Information Skills And Projects

1. Fill the table with suitable answers.

S.No.	Phenomena	Tool/Material/Substance
1.	Dispersion of light	A
2.	Scattering of light	B
3.	Myopia	C
4.	Hypermetropia	D

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2. Fill the table with suitable answers.

S.No.	Distance of far point (D)	Distance of near point (d)	Focal length of the lens (f)
1.	2 m	–	
2.		–	1 m
3.	–	2 m	
4.	–	1 m	

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Creative Questions For New Model Examination Section Iii Communication Through Drawing Model Making

1. Draw the arrangement of apparatus to get a rainbow in your lab or home.

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2. Imagine that sun light was fallen on a oxygen molecule. Then light was scattered. Draw a diagram to show this situation.

Watch Video Solution

Creative Questions For New Model Examination Section Iii Appreciation And Aesthetic Sense Values

1. How do you appreciate the different lenses for their role in our vision ?

Watch Video Solution

Creative Questions For New Model Examination Section Iii Application To Daily Life Concern To Biodiversity

1. Write any two situations to observe dispersion of light in your daily life.

Watch Video Solution

Creative Questions For New Model Examination Section Iv 4 Marks Questions

1. Kavya can see distant objects clearly but cannot see objects at near distance. With what eye defect is she suffering ? Draw the diagrams showing the defected eye and its correction ?

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2. Revathi is a front bench student . She is unable to draw the picture drawn on the blackboard. She got permission from the teacher and sat in the back row. What could be the kkdefect that Revathi is suffering from ? Draw the diagram, which shows the correction of the above defect ?

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3. How will you calculate the focal length of a biconvex lens that is used to correct the defect f hypermetropia ? Explain it mathematically.

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4. An eye specialist suggested a+2D lens to the person with defect in vision. Which kind of defect in vision does he have ? Draw the diagrams to show the defect of vision and its correction with a suitable lens.

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5. Mention the required material and chemicals for the experiment of "scattering of light". Write the experiment procedure.

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6. Write the required apparatus and chemicals to show the scattering of light experimentally and write the experimental process.

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7. Demonstrate scattering by an experiment.

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Creative Questions For New Model Examination Section Iv Conceptual Understanding

1. Describe the structure of human eye ?

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2. Find the minimum and maximum focal lengths of the eye lens.

Watch Video Solution

3. What do you mean by presbyopia ? How is it corrected ?

Watch Video Solution

4. Why white light splits into different colours when it passes through a prism ?

Watch Video Solution

5. A prism causes dispersion of white light while a rectangular glass block does not. Explain.

Watch Video Solution

6. What is scattering ? Explain how a light scatters.

Watch Video Solution

7. What is myopia ? What are the reasons that arise this defect ? How can you rectify this defect ?

Watch Video Solution

8. What is hypermetropia ? What are the causes of this defect ? How can this defect of the eye be corrected ?

Watch Video Solution

9. How can we get same image distance for various positions of objects ?

Watch Video Solution

10. Does eye lens form a real image or virtual image ?

Watch Video Solution

11. How does the image formed on retina help us to precieve the object without change its shape , size and colour ?

Watch Video Solution

Creative Questions For New Model Examination Section Iv Information Skills And Projects

1. The given values in the table are obtained in an experiment by a prism.

S.No.	Angle of incidence (i_1)	Angle of emergence (i_2)	Angle of deviation (d)
1.	30°	75°	45°
2.	35°	66°	41°
3.	40°	59°	39°
4.	45°	63°	38°
5.	50°	50°	40°
6.	55°	43°	38°

What is the angle of the prism ?

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2. The given values in the table are obtained in an experiment by a prism.

S.No.	Angle of incidence (i_1)	Angle of emergence (i_2)	Angle of deviation (d)
1.	30°	75°	45°
2.	35°	66°	41°
3.	40°	59°	39°
4.	45°	63°	38°
5.	50°	50°	40°
6.	55°	43°	38°

What is the minimum angle of deviation ? Why ?

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3. The given values in the table are obtained in an experiment by a prism.

S.No.	Angle of incidence (i_1)	Angle of emergence (i_2)	Angle of deviation (d)
1.	30°	75°	45°
2.	35°	66°	41°
3.	40°	59°	39°
4.	45°	63°	38°
5.	50°	50°	40°
6.	55°	43°	38°

What is the refractive index of the prism ? (sin 55° =0.819)

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4. The given values in the table are obtained in an experiment by a prism.

S.No.	Angle of incidence (i_1)	Angle of emergence (i_2)	Angle of deviation (d)
1.	30°	75°	45°
2.	35°	66°	41°
3.	40°	59°	39°
4.	45°	63°	38°
5.	50°	50°	40°
6.	55°	43°	38°

What is the shape of the graph of angle of incidence vs angle of deviation ?

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5. Read the following and answer the question :

Srilatha and Sunitha are friends. Srilatha can see the far objects clearly from the point of 90 cm away from the eyes. Sunitha can see the closer objects upto the distance of 200 cm clearly.

Who is suffering from myopia ?

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6. Read the following and answer the question :

Srilatha and Sunitha are friends. Srilatha can see the far objects clearly from the point of 90 cm away from the eyes. Sunitha can see the closer objects upto the distance of 200 cm clearly.

Who is suffering from hypermetropia ?

Watch Video Solution

7. Read the following and answer the question :

Srilatha and Sunitha are friends. Srilatha can see the far objects clearly from the point of 90 cm away from the eyes. Sunitha can see the closer objects upto the distance of 200 cm clearly.

Which type of lenses are suitable to Sunitha ?

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8. Read the following and answer the question :

Srilatha and Sunitha are friends. Srilatha can see the far objects clearly from the point of 90 cm away from the eyes.

Sunitha can see the closer objects upto the distance of 200 cm clearly.

Which type of lenses are suitable to Srilatha ?

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9.

Person	Power of lens used for a single eye
Mohan	– 2 diaptre
Rithvik	+1 diaptre
Anitha	+1 and – 1 diaptre

Who is suffering from presbyopia ?

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10.

Person	Power of lens used for a single eye
Mohan	– 2 diaptre
Rithvik	+1 diaptre
Anitha	+1 and – 1 diaptre

What type of vision defect has Mohan ?

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11.

Person	Power of lens used for a single eye
Mohan	– 2 diaptre
Rithvik	+1 diaptre
Anitha	+1 and – 1 diaptre

What is the focal length of lens used by Rithvik ?

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12.

Person	Power of lens used for a single eye
Mohan	– 2 diaptre
Rithvik	+1 diaptre
Anitha	+1 and – 1 diaptre

Which type of lens is used by Mohan ?

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Creative Questions For New Model Examination Section Iv Communication Through Drawing Model Making

1. Draw the diagram of the shape of the eye lens .

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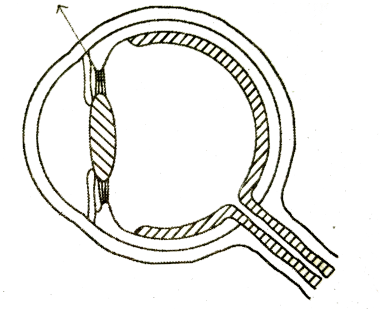
2. What is the part indicated by an arrow mark ?

What is its working function ?



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Creative Questions For New Model Examination Section Iv Appreciation And Aesthetic Sense Values

1. How do you appreciate Sir C.V.Raman ?

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Creative Questions For New Model Examination Section Iv Application To Daily Life Concern To Biodiversity

1. You can observe the red colour of Sun during Sunrise and Sunset. Which colours scatter more ?

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