

HUMAN EYE AND COLOURFUL WORLD

½ Mark Questions

1. Match the suitable answers of section-B with section-A.

Section-A

- 1) Least distance of distinct vision
- 2) Range of normal vision
- 3) Angle of vision

Section-B

- p) 60°
- q) 0 to infinity
- r) 25 cm to infinity
- s) 25 cm
- t) 30°

2. **Assertion (A)** : The least distance of distinct vision of a child is as close as 7 to 8 cm.

Reason (R) : At young age the muscles around the eye are strong and flexible.

Which of the following is/are correct.

- A) Both A and R are correct and R supports A
- B) Both A and R are correct but R does not support A
- C) A is wrong but R is correct
- D) A is correct but R is wrong.

3. **X**: The value of least distance of distinct vision varies from person to person and with age.

Y: The angle of vision varies from person to person and with age

Which of the above statement is/are correct?

4. Can you see the whole object or only the part of object when the angle of vision is more than 60° ?

5. Match the suitable answers of section-B with Section-A

Section-A

- 1) Front part of the Eye
- 2) Coloured part of the eye
- 3) A hole in the middle part of the iris

Section-B

- p) pupil
- q) iris
- r) cornea

6. **Assertion (A)** : The pupil appears black in colour.

Reason (R) : Light falling on the pupil completely coming back to the outside

Which of the following statement is correct.

- A) Both A and R are correct and R supports A.
- B) Both A and R are correct but R does not support A.
- C) A is wrong but R is correct
- D) A is correct but R is wrong

7. What happens to the size of the pupil when you entered into a cinema hall?

8. Name the part of the human-eye which contains 'rods' and 'cones' to receive light signals?

9. Match the suitable answer of section-B with section-A

Section-A

- 1) Variable aperture
- 2) Eye-Lens
- 3) In low light condition
- 4) In bright light condition

Section -B

- p) The size of the pupil decreases
- q) The size of the pupil increases
- r) Convex-lens
- s) Pupil

10. Which one of the following remains constant when objects at different distances are seen by the eye.

- A) focal length of the human eye
- B) object distance from eye-lens
- C) The radii of curvature of eye-lens
- D) Image distance from eye lens

11. **X:** When the Eye is focused on a closer object the ciliary muscles are strained and focal length of the Eye lens reached minimum.
Y: When the Eye is focused on a distant object the ciliary muscles are relaxed and focal length of the Eye lens reached maximum.
 Which of the above statement is/are correct?
12. **X:** The Eye Lens forms a real and inverted image of an object on the retina.
Y: The eye lens forms a virtual and erect image of a object on the retina.
 Which of the above statement is/are correct.
13. The value focal length of the Eye Lens when an object is placed at a distance of least distant of distinct vision?
14. Name the cells present in the retina of an Eye which can identify the colour of an object?
15. What do we call the process of adjusting the focal length of Eye lens?
16. What are the maximum and minimum focal lengths of Eye lens?
17. Match the suitable answers of section-B with section-A

Section-A

Section-B

- | | |
|--|-------------|
| 1) Maximum focal length of a myopic Eye | p) 2.27 cm |
| 2) Maximum focal length of a hypermetropic eye | q) 2.50 cm |
| 3) Minimum focal length of a myopic Eye | r) >2.27 cm |
| 4) Minimum focal length of a hypermetropic Eye | s) <2.50 cm |
| | t) <2.27 cm |
| | u) >2.50 cm |

18. Match the suitable answers of section-B and section-A

Section-A

Section-B

- | | |
|--|-------------------|
| 1) Can't see objects beyond farpoint | p) myopia |
| 2) Can't see objects before near point | q) hyper metropia |
| 3) Convex lens are used to correct | |
| 4) Concave lens are used to correct | |

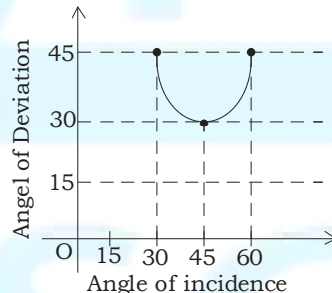
19. **P:** In myopia people cannot see objects beyond far point
Q: In hypermetropia people can see objects between near point and least distance of distinct vision point
R: For a myopic eye the image is formed before the retina when the object is placed beyond for point.
S: For a hypermetropic eye the image is formed beyond the retina when the object is placed before near point.

Which of the above statement is/are false?

20. What do we call the degree of convergence or divergence of light rays that can be achieved by a lens?
21. Find the focal length of the lens if the power of the lens is 2D?
22. Write the formula to find the focal length of the lens to be used to correct hyper metropia when the near point distance is "d"cm?
23. Far point of a person is 5 m. In order to have normal vision what kind of spectacles should he use.
 A) Concave lens with focal length 5m
 B) Concave lens with focal length 10m
 C) Convex lens with focal length 5m
 D) Convex lens with focal length 2.5m
24. **X:** Bi focal lens has concavelens at its upper portion and convex lens at it's lower portion.
Y: Bi focal lens has convex lens at it's upper portion and concavelens at it's lower portion.

Which of the above statement is correct?

25. For a normal eye the far point is at infinity from the eye lens. The image is formed at the retina which is 2.5 cm away from the eye lens what is the power of eye lens?
26. A man driving a car can read the distant road sign clearly but finds difficulty in reading the odometer on the dash-board of the car. Which of the following statement is correct about this man.
- A) The near point of his eyes has receded away.
B) The near point of his eyes has come closer to him.
C) The far-point of his eyes has receded away.
D) The far point of his eyes come-closer to him.
27. Near point of a person is 2m. Which of the following statements are true for him.
- A) He can see the objects within 2m clearly.
B) He can see the objects beyond 2m clearly
C) He required biconvex lens.
28. Which of the following statement is false
- A) The angle between the two rectangular plane surfaces of a prism is called the angle of prism.
B) The angle between the emergent ray and normal is called the angle of emergency.
C) The angle between the emergent ray and incident ray is called angle of deviation.
D) The angle between the incident ray and refracted ray is called angle of deviation.
29. A ray of light incident with 45° on one of the lateral surface of an equilateral prism placed on the horizontal surface of a table Find the minimum deviation produced by a prism?
30. Find angle of as glass-prism from the graph.



31. **X:** At minimum angle of deviation the angle of incidence is equal to angle of emergence.
Y: At minimum angle of deviation the incident ray is parallel to the emergent ray.
Which of the above statement is/are false.
32. Write the relation among angle of incidence (i_1), angle of emergence (i_2) angle of deviation (d) and angle of prism (A)?
33. Which of the following statement is true for “angle of deviation produced by a prism” while performing a Lab-activity to find out the refractive index of a prism.
- A) Increases with increase in the angle of incidence.
B) Decreases first and then increases with increase in the angle of incidence
C) Increases first and then decreases with increase in the angle of incidence
34. **Assertion (A) :** The sky appears blue.
Reason (R) : The sizes of N_2 and O_2 molecules are comparable to the wavelength of blue colour of a light.
- A) Both A and R are correct and R supports A
B) Both A and R are correct and R does not support A
C) A is wrong but R is correct
D) A is correct but R is wrong.

35. **Assertion (A):** The refractive index of a prism depends only on the kind of glass of which it is made and the colour of light.
Reason (R) : The Refractive index of a prism depends on the refracting angle of prism and the angle of minimum deviation.
 Which of the following statement is true.
 A) Both A and R are true and R is the correct explanation of A
 B) Both A and R are true but R is not correct explanation of A
 C) A is true, but R is false
 D) A is false but R is true
36. Write the relation among the speed of light (v), wave length (λ) and frequency (ν) of light?
37. What happens to refractive index of a medium when wavelength of incident light ray increases?
38. Arrange the following in ascending order with respect to their wavelength.
 Violet, Green, Blue, Red.
39. **X:** The speed of light is constant in vacuum for all colours.
Y: The speed of light is different in a medium for different colours.
 Which of the above statement is/are correct?
40. Which one of the following phenomenon of light are involved in the formation of rainbow.
 A) refraction, dispersion
 B) reflection, refraction and dispersion
 C) Refraction, dispersion and total internal reflection
 D) dispersion, scattering and total internal reflection

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KEY

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|---------------------------------|-------------------------|--------------------------------|--------------------------------|
| 1) 1-s, 2-r, 3-p | 2) A | 3) X and Y | 4) Only the part of object |
| 5) 1-r, 2-q, 3-p | 6) D | 7) Size of the pupil increases | 8) retina |
| 9) 1-s, 2-r, 3-q, 4-p | | 10) D | 11) X and Y |
| 13) 2.27 cm | | 14) Cones | 15) Accommodation of eye lens. |
| 16) 2.50 cm, 2.27 cm | | 17) 1-s, 2-q, 3-p, 4-r | |
| 18) 1-p, 2-q, 3-q, 4-p | | 19) Q | 20) power of lens |
| 22) $f=25d/(d-25)$ | | 23) A | 24) X |
| 26) A | 27) B and C | 28) D | 29) 30° |
| 31) Y | 32) $i_1 + i_2 = A + d$ | 33) D | 34) A |
| 35) C | 36) $v = v\lambda$ | 37) decreases | |
| 38) violet, blue, green and red | | 39) X and Y | 40) C |

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