SmartKalike

CBSE Class 10 · Science

The Human Eye and the Colourful World

10 most probable questions for Boards 2027

Q1. 1 mark · Multiple choice

For a young adult with normal vision, the least distance of distinct vision is approximately: (A) 2.5 cm (B) 25 cm (C) 2.5 m (D) infinity

Answer

(B) 25 cm — For a young adult with normal vision, the near point is about 25 cm.

Q2. 2 marks · Short answer

What is the far point of the eye? State the far point for a normal eye.

Answer

The farthest point upto which the eye can see objects clearly is called the far point of the eye. It is infinity for a normal eye. A normal eye can see objects clearly that are between 25 cm and infinity.

Q3. 3 marks · Medium answer

What is accommodation of the eye? Explain how the ciliary muscles change the eye lens for viewing distant and nearby objects, including the resulting changes in lens thickness and focal length.

Answer

1. The ability of the eye lens to adjust its focal length is called accommodation.
2. For distant objects, relaxed ciliary muscles make the lens thin, increasing its focal length and enabling clear vision.
3. For nearby objects, ciliary muscles contract and increase the curvature of the eye lens. The lens becomes thicker, its focal length decreases, and nearby objects are seen clearly.

Q4. 5 marks · Long answer

Name two ways, other than ordinary spectacles, of correcting refractive defects. State who may donate eyes, including whether wearing spectacles or having certain common conditions such as diabetes or asthma necessarily prevents donation. Name diseases that make a person ineligible to donate eyes. (5 marks)

Answer

Refractive defects can be corrected without ordinary spectacles by contact lenses or surgical interventions.
1. Contact lenses are one way of correcting refractive defects and provide an alternative to ordinary spectacles.
2. Surgical interventions are another way of correcting refractive defects apart from ordinary spectacles.
3. Eye donors may belong to any age group or sex. Wearing spectacles does not prevent donation,

and people who have undergone cataract operation may also donate.
4. People with diabetes, hypertension or asthma can also donate eyes. People with communicable diseases are not eligible to donate.
Contact lenses and surgical interventions provide alternatives for correcting refractive defects, while communicable diseases prevent eye donation.

Q5. 1 mark · Multiple choice

Compared with a glass slab, the inclined refracting faces of a prism cause the emergent ray to: (A) remain parallel to the incident ray (B) bend at an angle to the incident ray's original direction (C) retrace the incident ray's path (D) travel without refraction

Answer

(B) bend at an angle to the incident ray's original direction — The peculiar shape of the prism makes the emergent ray bend at an angle to the direction of the incident ray.

Q6. 2 marks · Short answer

What is myopia, or near-sightedness? State which objects a person with myopia can and cannot see clearly.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/science/the-human-eye-and-the-colourful-world

Q7. 3 marks · Medium answer

State how the sizes of atmospheric particles compare with visible-light wavelengths and compare the wavelengths of red and blue light. What would the sky look like without an atmosphere, and why is scattering less prominent at very high altitudes?

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Q8. 1 mark · Multiple choice

As a ray passes through a prism from air into glass and then from glass into air, it bends respectively: (A) away from the normal, then towards it (B) towards the normal, then away from it (C) towards the normal at both surfaces (D) away from the normal at both surfaces

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Q9. 2 marks · Short answer

Where is the image of a distant object formed in a myopic eye? How does the far point of a myopic eye compare with infinity?

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Q10. 1 mark · Multiple choice

When passing through a glass prism, which statement is correct? (A) Red bends most and violet least (B) Red bends least and violet most (C) Red and violet bend equally (D) Neither red nor violet is refracted

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