



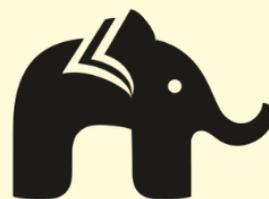
PRACTICE MCQS

CLASS 10 SCIENCE (TERM - I)

**HUMAN EYE AND
COLOURFUL WORLD**

BY

learn-o-hub
learning simplified



**Question 1:**

Match the following:

A. Retina	i) Thin transparent membrane through which the light enters
B. Cornea	ii) A dark muscular diaphragm that controls the size of the pupil
C. Iris	iii) Delicate membrane having enormous number of light-sensitive cells
D. Pupil	iv) Forms an inverted real image of the object on the retina
E. Lens	v) Regulates and controls the amount of light entering the eye

(a) A – iii, B – i, C – ii, D – v, E – iv

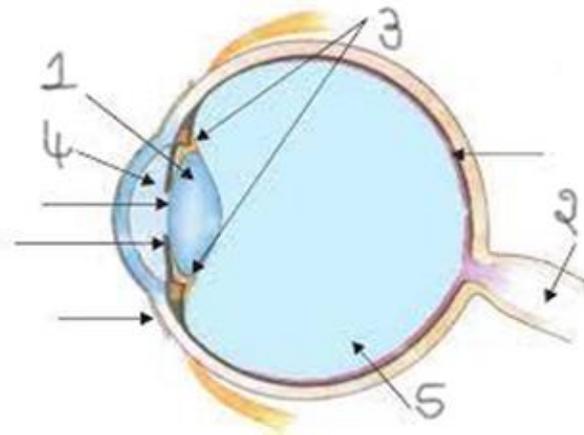
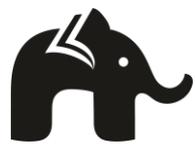
(b) A – ii, B – i, C – iii, D – v, E – iv

(c) A – i, B – iii, C – ii, D – v, E – iv

(d) A – iv, B – i, C – ii, D – v, E – iii

Answer: (a) A – iii, B – i, C – ii, D – v, E – iv**Question 2:**

Name the mentioned parts in the following diagram:



(a) 1- vitreous humour, 2- aqueous humour, 3- crystalline lens, 4- optic nerve, 5- ciliary muscles

(b) 1- ciliary muscles, 2- crystalline lens, 3- aqueous humour, 4- vitreous humour, 5- optic nerve

(c) 1- crystalline lens, 2- optic nerve, 3- ciliary muscles, 4- aqueous humour, 5- vitreous humour

(d) 1- aqueous humour, 2- vitreous humour, 3- crystalline lens, 4- optic nerve, 5- ciliary muscles

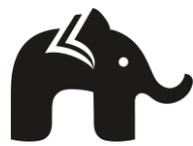
Answer: (c) 1- crystalline lens, 2- optic nerve, 3- ciliary muscles, 4- aqueous humour, 5- vitreous humour

The crystalline lens provides the finer adjustment of focal length required to focus objects at different distances on the retina.

The retina is a delicate membrane having an enormous number of light-sensitive cells. The light-sensitive cells get activated upon illumination and generate electrical signals. These signals are sent to the brain via the optic nerves.

Ciliary muscles are attached to the eye lens and are involved in accommodation reflex. They help in changing the shape of the lens to focus on the near object.

Aqueous humour is the clear watery fluid between the cornea and the vitreous which nourishes the lens and maintains the pressure within the eye.



Vitreous humour is attached to the retina and it maintains the round shape and vision clarity of the eye.

Question 3:

The iris _____ the pupil when the light is very bright and _____ the pupil in a dim-lit room.

- (a) Expands, contracts
- (b) Increases, decreases
- (c) Decreases, increases
- (d) Contracts, expands

Answer: (d) Contracts, expands

The pupil of an eye acts like a variable aperture whose size can be varied with the help of the iris. When the light is very bright, the iris contracts the pupil to allow less light to enter the eye. However, in dim light the iris expands the pupil to allow more light to enter the eye. Thus, the pupil opens completely through the relaxation of the iris.

Question 4:

The ability of the eye lens to adjust its focal length is called _____ .

- (a) Cataract
- (b) Near point of the eye
- (c) Far point of the eye
- (d) Accommodation

Answer: (d) Accommodation



The eye lens is composed of a fibrous, jelly-like material. Its curvature can be modified to some extent by the ciliary muscles. The change in the curvature of the eye lens can thus change its focal length. When the muscles are relaxed, the lens becomes thin. Thus, its focal length increases. This enables us to see distant objects clearly. While looking at objects closer to the eye, the ciliary muscles contract. This increases the curvature of the eye lens. The eye lens then becomes thicker. Consequently, the focal length of the eye lens decreases. This enables us to see nearby objects clearly. The ability of the eye lens to adjust its focal length is called accommodation.

Question 5:

The smallest distance at which the eye can see objects clearly without strain, is called the _____. For a young adult with normal vision, it is about _____.

- (a) Near point of the eye, 2.5cm
- (b) Near point of the eye, 25cm
- (c) Near point of the eye, 25mm
- (d) Near point of the eye, 2.5mm

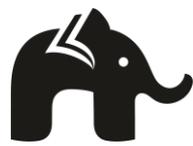
Answer: (b) Near point of the eye, 25cm

A normal eye can see objects clearly that are between 25 cm and infinity.

Question 6:

Cataract is a condition when the _____ of people at old age becomes milky and cloudy.

- (a) Crystalline lens
- (b) Cornea
- (c) Retina



(d) Iris

Answer: (a) Crystalline lens

The crystalline lens of people at old age becomes milky and cloudy. This condition is called cataract. This causes partial or complete loss of vision. It is possible to restore vision through cataract surgery.

Question 7:

A person with myopia _____ .

- (a) Can see the nearby objects clearly
- (b) Cannot see distant objects distinctly
- (c) Only 'a' is correct
- (d) Both 'a' and 'b' is correct

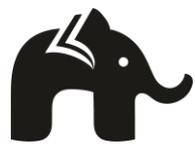
Answer: (d) Both 'a' and 'b' is correct

Myopia is also known as near-sightedness. A person with myopia can see nearby objects clearly but cannot see distant objects distinctly. A person with this defect has a far point nearer than infinity. Such a person may see clearly upto a distance of a few metres.

Question 8:

Myopia can be corrected by using _____ lens.

- (a) Convex
- (b) Concave
- (c) Neither convex nor concave
- (d) None of the above



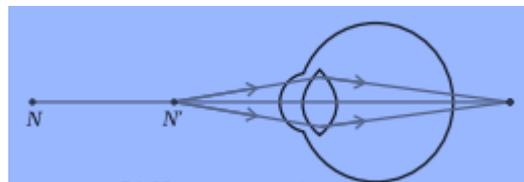
Answer: (b) Concave

A concave lens of suitable power will bring the image back on to the retina and thus the defect is corrected.

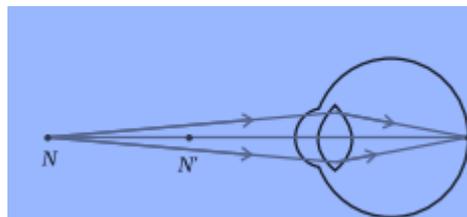
Question 9:

Which of the following images represents a hypermetropic eye?

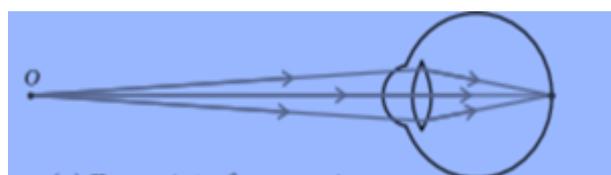
(a)



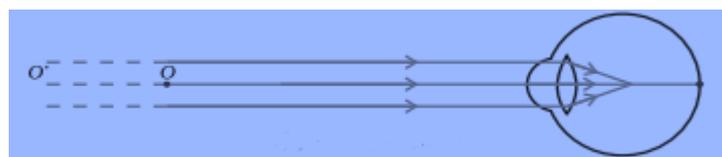
(b)



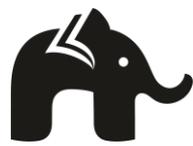
(c)



(d)



Answer: (a)



Hypermetropia is also known as far-sightedness. A person with hypermetropia can see distant objects clearly but cannot see nearby objects distinctly. The light rays from a closeby object are focussed at a point behind the retina.

Question 10:

The gradual loss of the eye's ability to focus on nearby objects is called as ____ .

- (a) Myopia
- (b) Hypermetropia
- (c) Presbyopia
- (d) Byopia

Answer: (c) Presbyopia

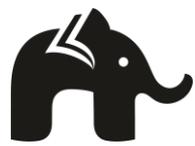
The power of accommodation of the eye usually decreases with ageing. For most people, the near point gradually recedes away. They find it difficult to see nearby objects comfortably and distinctly without corrective eye-glasses. This defect is called Presbyopia.

Question 11:

Rahul suffers from both myopia and hypermetropia, what kind of lenses should he use?

- (a) Magnifying glasses
- (b) Bi-focal lens
- (c) Convex lens
- (d) Concave lens

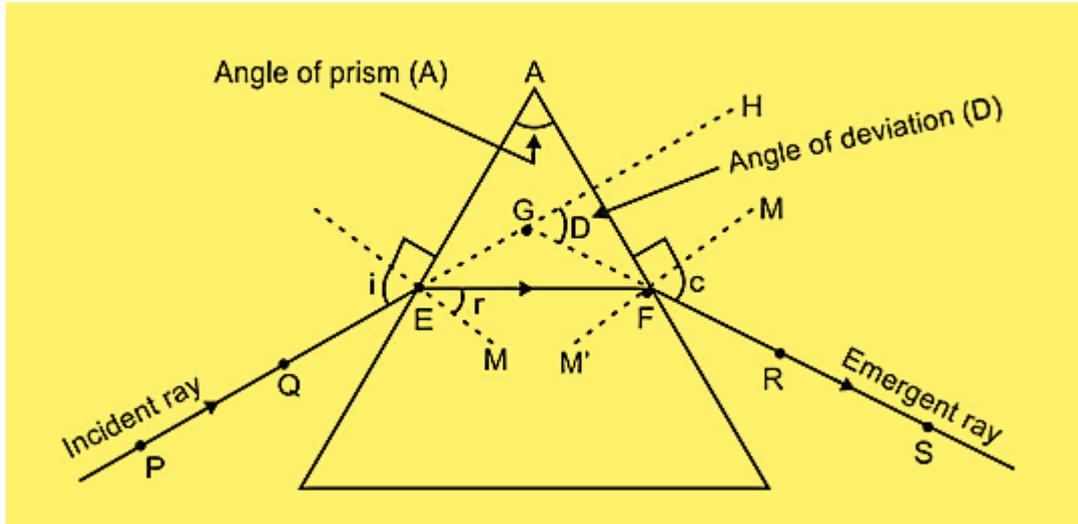
Answer: (b) bi-focal lens



A common type of bi-focal lenses consists of both concave and convex lenses. The upper portion consists of a concave lens. It facilitates distant vision. The lower part is a convex lens. It facilitates near vision.

Question 12:

In the following diagram 'r' represents _____ .



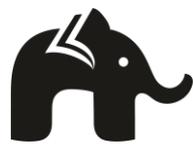
- (a) Angle of reflection
- (b) Angle of incidence
- (c) Angle of refraction
- (d) Angle of prism

Answer: (c) angle of refraction

Question 13:

When the sunlight passes through the atmosphere, the sky appears blue because of the fine particles in air _____ .

- (a) Scatter shorter wavelengths more strongly
- (b) Scatter longer wavelengths more strongly



(c) Scatter all the wavelengths equally

(d) None of the above

Answer: (a) scatter shorter wavelengths more strongly

Question 14:

The 'danger' signal lights are red in colour because _____.

(a) Red is most scattered by fog or smoke

(b) Red colour is not scattered by the dust particles

(c) Red is least scattered by fog or smoke

(d) Blue colour is most scattered by fog or smoke

Answer: (c) Red colour is least scattered by fog or smoke

Question 15:

During the sunrise and sunset, sun appears reddish because _____.

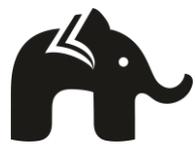
(a) Shorter wavelengths are scattered out and longer wavelengths reach our eyes.

(b) Longer wavelengths are scattered out and shorter wavelengths reach our eyes.

(c) Red colour is more dominant than blue

(d) Near the horizon longer wavelengths are scattered away

Answer: (a) Shorter wavelengths are scattered out and longer wavelengths reach our eyes.



Assertion Reason Based Questions

Answer these questions selecting the appropriate option given below:

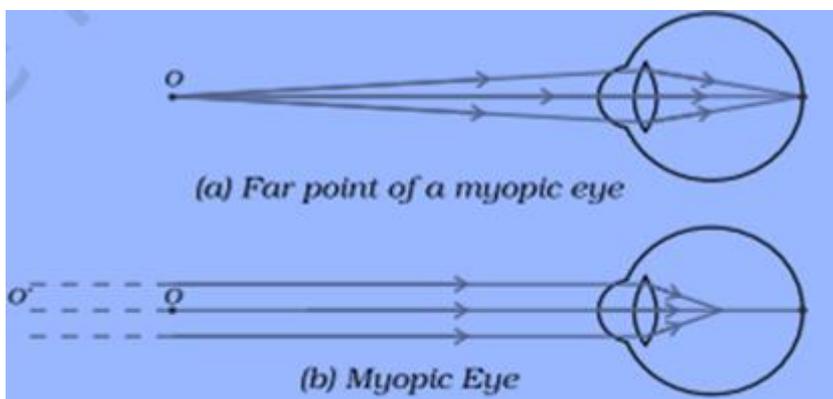
- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true and R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is False but R is true

Question 16:

Assertion: A person with myopia can see nearby objects clearly but cannot see distant objects distinctly.

Reason: In a myopic eye, the image of a distant object is formed in front of the retina and not at the retina itself. This defect may arise due to (i) excessive curvature of the eye lens, or (ii) elongation of the eyeball.

Answer: (a) Both A and R are true and R is the correct explanation of A





Question 17:

Assertion: When the light travels through the prism it bend towards the normal

Reason: Light travels from denser medium to less denser medium hence it bends towards the normal.

Answer: (c) A is true but R is false

Question 18:

Assertion: The scattering of light caused by a medium containing suspended particles is called Tyndall effect.

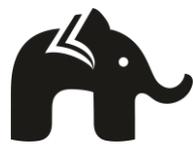
Reason: The earth's atmosphere is a heterogeneous mixture of minute particles. These particles include smoke, tiny water droplets, suspended particles of dust and molecules of air. When a beam of light strikes such fine particles, the path of the beam becomes visible. The light reaches us, after being reflected diffusely by these particles.

Answer: (a) both aA and R are true and R is the correct explanation of A

Case study based questions

Question 19:

The phenomenon of the bending of the light, when it travels from one medium to the other is called the refraction of the light. Many objects that we use in our daily life are based on the concept of the refraction. For example, cameras, light refracting from a glass bowl, microscope, telescope, and human eye etc. work on the concept of refraction. The light from a source gets reflected and enters into the camera, after getting refracted through the camera lens it focuses all the light to one point. When the white light passes through the



prism, along with the refraction it splits the incident white light into a band of colours.

(1) The splitting of the light into its component colours is called _____ .

- (a) Refraction
- (b) Dispersion
- (c) Reflection
- (d) Deviation

(2) VIBGYOR, the band of the coloured components of a light beam is called as _____ .

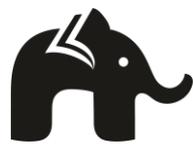
- (a) Dispersion
- (b) Refraction
- (c) Spectrum
- (d) None of the above

(3) When a beam of white light passes through a prism, the colour that bends the least is _____

- (a) Red
- (b) Blue
- (c) Yellow
- (d) Violet

(4) A rainbow is a natural spectrum appearing in the sky caused by _____ of sunlight by water droplets present in the atmosphere.

- (a) Refraction
- (b) Reflection



(c) Dispersion

(d) Spectrum

(5) What acts like a small prism in the formation of a rainbow?

(a) Sun

(b) Atmosphere

(c) Water droplets

(d) White light

Answer:

(1) (b) dispersion

(2) (c) spectrum

(3) (a) red

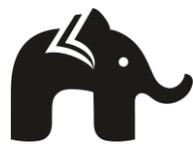
(4) (c) dispersion

(5) (c) water droplets

Question 20:

The stars appear slightly higher (above) than its actual position when viewed near the horizon. Further, this apparent position of the star is not stationary, but keeps on changing slightly, since the physical conditions of the earth's atmosphere are not stationary. Since the stars are very distant, they approximate point-sized sources of light. As the path of rays of light coming from the star goes on varying slightly, the apparent position of the star fluctuates and the amount of starlight entering the eye flickers – the star sometimes appears brighter, and at some other time, fainter, which is the twinkling effect.

(1) The twinkling effect of the stars is a result of _____ .



- (a) Internal reflection
- (b) Scattering
- (c) Dispersion
- (d) Atmospheric refraction

(2) Which of the following is caused due to atmospheric refraction?

- (a) Twinkling of the stars
- (b) Advanced sunrise and sunset
- (c) only 'a'
- (d) both 'a' and 'b'

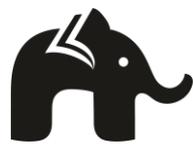
(3) State whether the following statements are true or false:

Statement 1: If the planets are considered as a collection of a large number of point-sized sources of light, the total variation in the amount of light entering our eye from all the individual point-sized sources will average out to zero, hence planets do not twinkle.

Statement 2: Advance sunrise and delayed sunset are caused because of atmospheric refraction.

Statement 3: The apparent flattening of the Sun's disc at sunrise and sunset is due to the atmospheric refraction.

- (a) All the statements are true
- (b) All the statements are false
- (c) Only statement 1 and 2 is true
- (d) Only statement 1 is true



(4) The atmosphere of the earth has layers of air which do not have same temperature. The hotter air has a refractive index slightly _____ than the cooler air.

- (a) More
- (b) Less
- (c) More or less
- (d) None of the above

(5) State whether the following statements are true or false:

Statement 1: the refraction of the light caused by the earth's atmosphere is called atmospheric refraction.

Statement 2: The sun is visible to us about 2 minutes before the actual sunrise and 2 minutes after the actual sunset.

- (a) All the statements are true
- (b) All the statements are false
- (c) Only statement 1 is true
- (d) Only statement 2 is true

Answer:

- (1) (d) Atmospheric refraction
- (2) (d) both 'a' and 'b'
- (3) (a) all the statements are true
- (4) (b) Less
- (5) (a) all the statements are true
