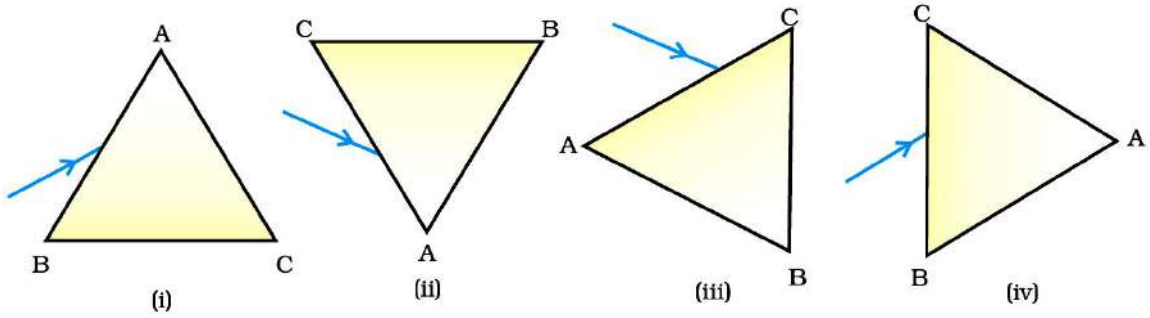
PRACTICE PAPER 10
CHAPTER 10 THE HUMAN EYE AND COLOURFUL WORLD

SUBJECT: SCIENCE **MAX. MARKS : 40**
CLASS : X **DURATION : 1½ hrs**

General Instructions:
(i). **All** questions are compulsory.
(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.
(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.
(iv). There is no overall choice.
(v). Use of Calculators is not permitted

SECTION – A
Questions 1 to 10 carry 1 mark each.

1. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in below figure. In which of the following diagrams, after dispersion, the third colour from the top of the spectrum corresponds to the colour of the sky?

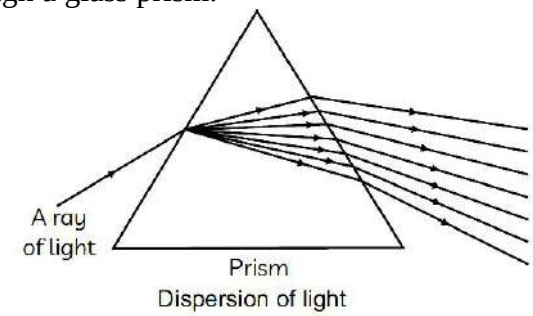


Options:
(a) (i) (b) (ii) (c) (iii) (d) (iv)

2. The sky appears dark to passengers flying at very high altitudes mainly because:
(a) scattering of light is not enough at such heights.
(b) there is no atmosphere at great heights.
(c) the size of molecules is smaller than the wavelength of visible light.
(d) the light gets scattered towards the earth.

3. A student sitting on the last bench can read the letters written on the blackboard but is not able to read the letters written in his text book. Which of the following statements is correct?
(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 come closer to him.
(d) The far point of his eyes has receded away.

4. A ray of light passes through a glass prism.



When do the light rays get refracted?
(I) As the light ray enters the prism from the air.
(II) As the light rays travel inside the prism.
(III) As the light rays move from the prism into the air.
Options:
(a) only (I) (b) only (II) (c) (II) and (III) (d) (I) and (III)

5. Which of the following statements is NOT true for scattering of light?
(a) Colour of the scattered light depends on the size of particles of the atmosphere.
(b) Red light is least scattered in the atmosphere.
(c) Scattering of light takes place as various colours of white light travel with different speed in air.
(d) The fine particles in the atmospheric air scatter the blue light more strongly than red. So the scattered blue light enters our eyes.

6. In an experiment to trace the path of a ray of light through a triangular glass prism, a student would observe that the emergent ray:
(a) is parallel to the incident ray
(b) is along the same direction of incident ray
(c) gets deviated and bends towards the thinner part of the prism
(d) gets deviated and bends towards the thicker part (base) of the prism

7. A person is seeing an object closer to his eyes. What changes in his eyes will take place?
(a) The pupil size will expand
(b) The ciliary muscles will contract
(c) The focal length of eye lens will increase
(d) The light entering in the eye will be more

8. A student traces the path of a ray of light through a glass prism for different angles of incidence. He analyses each diagram and draws the following conclusion:
(I) On entering prism, the light ray bends towards its base.
(II) Light ray suffers refraction at the point of incidence and point of emergence while passing through the prism.
(III) Emergent ray bends at certain angle to the direction of the incident ray.
(IV) While emerging from the prism, the light ray bends towards the vertex of the prism.
Out of the above inferences, the correct ones are:
(a) (I), (II) and (III) (b) (I), (III) and (IV)
(c) (II), (III) and (IV) (d) (I) and (IV)

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

9. **Assertion (A):** Hypermetropia is the defect of the eye in which only farther objects are seen.
Reason (R): Hypermetropia is corrected by using converging lens.

10. **Assertion (A):** A rainbow is always formed in the sky after a rain shower and in the same direction as sun.
Reason (R): Water droplets act like tiny prisms.

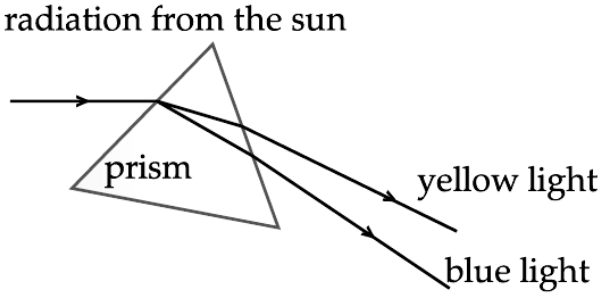
SECTION – B

Questions 11 to 14 carry 2 marks each.

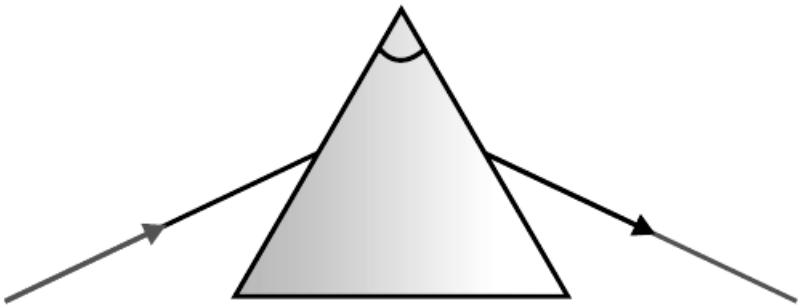
11. Varun instead of copying from the black board used to copy regularly from the notebook of his friend, Sudhir with whom he sat on the same desk. Sudhir told the teacher about it. The teacher asked Varun to get his eyes checked by a doctor and explained to the whole class the reason why Varun copied from Sudhir's notebook.
(a) What in your view, is wrong with Varun's eyes and how can it be corrected?
(b) If the doctor prescribes Varun to use lenses of power – 0.5 D, what is the type of the lenses?

12. Why is Tyndall effect shown by colloidal particles? State four instances of observing the Tyndall effect.

13. State the phenomena observed in the given diagram. Explain with reference to the diagram, which of the two lights mentioned above will have the higher wavelength?



14. A student traces the path of a ray of light through a glass prism as shown in the diagram, but leaves it incomplete and unlabelled. Redraw and complete the diagram. Also label on it ∠i, ∠e, ∠r and ∠D.



SECTION – C

Questions 15 to 17 carry 3 marks each.

15. (a) What is visible spectrum?
(b) Why is red used as the stopping light at traffic signals?
(c) Two triangular glass prisms are kept together connected through their rectangular side. A light beam is passed through one side of the combination. Will there be any dispersion? Justify your answer.

OR

Due to gradual weakening of ciliary muscles and diminishing flexibility of the eye lens a certain defect of vision arises. Write the name of this defect. Name the type of lens required by such persons to improve the vision. Explain the structure and function of such a lens.

16. (i) A person is suffering from both myopia and hypermetropia.
(a) What kind of lenses can correct this defect?
(b) How are these lenses prepared?

(ii) A person needs a lens of power +3D for correcting his near vision and –3D for correcting his distant vision. Calculate the focal lengths of the lenses required to correct these defects.

17. What is scattering of light? Why is the colour of the clear sky blue? Explain.

OR

Tiny droplets of water are responsible for the natural spectrum formed in the sky after a rain shower. What is that spectrum known as? Draw a labelled diagram to show the formation of a rainbow.

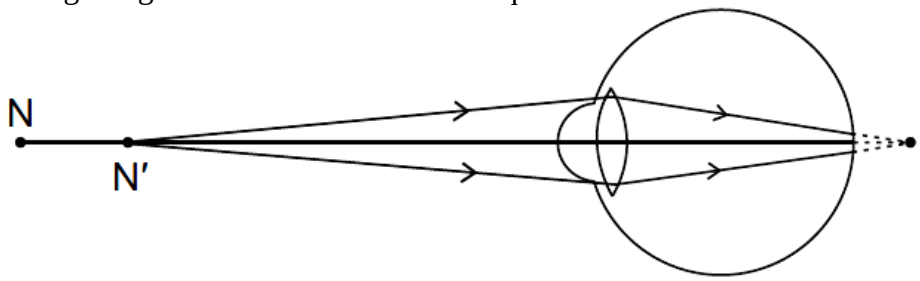
SECTION – D

Questions 18 carry 5 marks.

18. What is atmospheric refraction? Use this phenomenon to explain the following natural events.
(a) Twinkling of stars
(b) Advanced sunrise and delayed sunset.
Draw diagrams to illustrate your answers.

OR

(i) Write the functions of each of the following parts of the human eye:
(a) Cornea (b) Iris (c) Crystalline (Eye) lens
(d) Ciliary muscles (e) Retina
(ii) Study the diagram given below and answer the questions that follow:



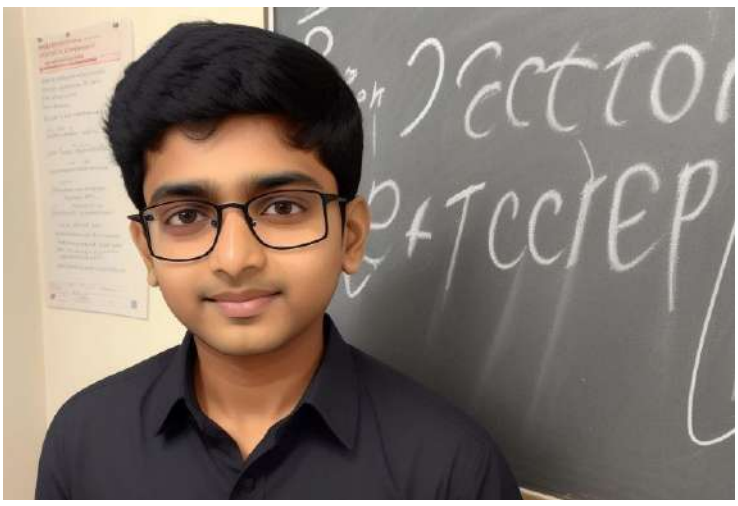
(a) Name the defect of vision represented in the diagram. Give reason for your answer.
(b) With the help of a diagram show how this defect of vision is corrected.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Read the given passage and answer the questions based on passage and related studied concepts.

Aditya, who was a back bencher in class, started complaining of frequent headaches. His parents took him to the nearest clinic and the doctor referred him to the eye specialist. The eye specialist tested his vision and asked Aditya whether he was able to read whatever the teacher wrote on the black board clearly or not. He replied in the negative. The doctor told his parents about the defect of vision that Aditya was suffering from and advised corrective glasses.



After wearing the glasses, Aditya was now able to read the black board clearly and also got rid of his headache.

(a) What type of defect is Aditya suffering from? What are the causes of this defect? (2)

(b) Where is image formed in Aditya's eyes? What type of lens is required to correct this defect? Draw the (i) defected eye of Aditya (ii) correction for this defect. (2)

OR

(b) The far point of a myopic person is 50 cm in front of the eyes. What will be the nature and power of the lens required to correct their problem? (2)

20. Aarush is a keen observer and loved the spectacular colours in a rainbow. He also observed the same pattern when he allowed sunlight to pass through a glass prism. He guessed that it is due to the inclined refracting surfaces of a glass prism which is responsible for showing such exciting phenomenon. Whereas, no such phenomenon was observed when light passes through a glass slab.

(a) Name the phenomenon which could explain the formation of rainbow.

(b) What is the band of colours known as? Explain the cause of formation of band of colours?

(c) Why don't we observe similar band of colours when light passes through a glass slab?

PRACTICE PAPER 10
CHAPTER 10 THE HUMAN EYE AND COLOURFUL WORLD
(ANSWERS)

SUBJECT: SCIENCE **MAX. MARKS : 40**
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General Instructions:
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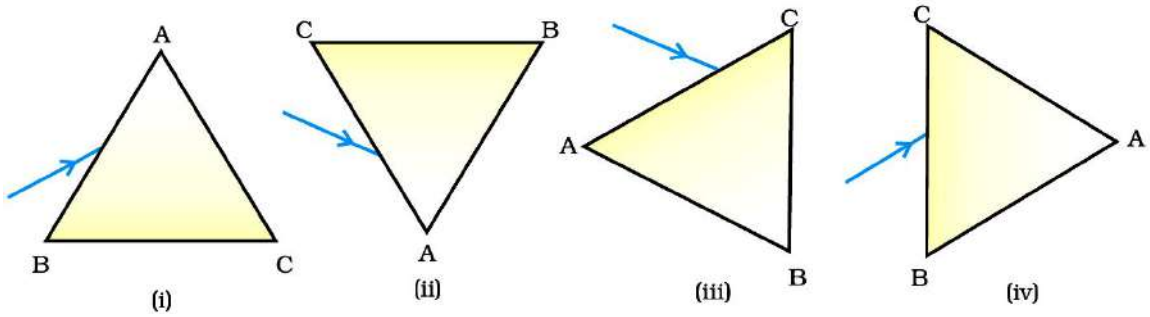
(iv). There is no overall choice.
(v). Use of Calculators is not permitted

SECTION – A
Questions 1 to 10 carry 1 mark each.

1. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in below figure. In which of the following diagrams, after dispersion, the third colour from the top of the spectrum corresponds to the colour of the sky?



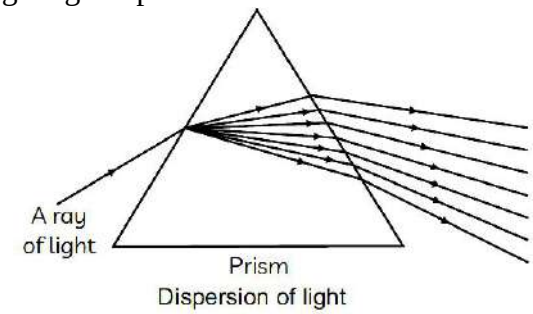
Options:
(a) (i) (b) (ii) (c) (iii) (d) (iv)
Ans. (b) (ii)
When white light is incident on a prism, it splits into its component colours VIBGYOR. The colour of sky, namely blue, will be seen as third colour from the top of the spectrum if the prism is inverted as shown in figure (ii).

2. The sky appears dark to passengers flying at very high altitudes mainly because:
(a) scattering of light is not enough at such heights.
(b) there is no atmosphere at great heights.
(c) the size of molecules is smaller than the wavelength of visible light.
(d) the light gets scattered towards the earth.
Ans. (a) scattering of light is not enough at such heights.
At higher altitude either the atmospheric medium is very rare or there are no particles present/no atmosphere, thus the scattering of light taking place is not enough at such heights or no scattering of sunlight takes place. Hence, the sky appears dark to the passengers flying at very high altitude.

3. A student sitting on the last bench can read the letters written on the blackboard but is not able to read the letters written in his text book. Which of the following statements is correct?
(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 come closer to him.
(d) The far point of his eyes has receded away.

Ans. (a) The near point of his eyes has receded away.
The student can see the object which is far from him but can't see nearby objects. It means that the near point of his eyes has receded away. This condition is known as hypermetropia or far-sightedness.

4. A ray of light passes through a glass prism.



Dispersion of light

When do the light rays get refracted?
(I) As the light ray enters the prism from the air.
(II) As the light rays travel inside the prism.
(III) As the light rays move from the prism into the air.
Options:
(a) only (I) (b) only (II) (c) (II) and (III) (d) (I) and (III)
Ans. (d) (I) and (III)
Light rays get refracted whenever they travel into a medium with a different refractive index. In options (I) and (III) the light ray enters the prism from the air and the light ray moves from the prism into the air, the refraction take place.

5. Which of the following statements is NOT true for scattering of light?
(a) Colour of the scattered light depends on the size of particles of the atmosphere.
(b) Red light is least scattered in the atmosphere.
(c) Scattering of light takes place as various colours of white light travel with different speed in air.
(d) The fine particles in the atmospheric air scatter the blue light more strongly than red. So the scattered blue light enters our eyes.
Ans. (c) Scattering of light takes place as various colours of white light travel with different speed in air.
Air is not a dispersive medium and hence the light of all wavelength travel with equal velocity. The colour of scattered particles: If particles are fine, they scatter mainly the blue colour of light (shorter wavelength). Medium sized particles scatter mainly the red colour (longer wavelength) and even larger particles scatter all the colours of light and light appears white. All the colours of white light move with the same speed because speed of light does not depend on colour and has a constant value

6. In an experiment to trace the path of a ray of light through a triangular glass prism, a student would observe that the emergent ray:
(a) is parallel to the incident ray
(b) is along the same direction of incident ray
(c) gets deviated and bends towards the thinner part of the prism
(d) gets deviated and bends towards the thicker part (base) of the prism
Ans. (d) gets deviated and bends towards the thicker part (base) of the prism.
In a prism, the ray of light from air into glass bends towards the normal. The ray of light from glass to air bends away from the normal. In both cases, when a ray of light passes through a prism, it bends towards the base (thicker part) of the prism.

7. A person is seeing an object closer to his eyes. What changes in his eyes will take place?
(a) The pupil size will expand

(b) The ciliary muscles will contract
(c) The focal length of eye lens will increase
(d) The light entering in the eye will be more
Ans. (b) the ciliary muscles will contract
When a person is seeing an object closer to his eyes, the ciliary muscles contracts. 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 to see nearby objects clearly.

8. A student traces the path of a ray of light through a glass prism for different angles of incidence. He analyses each diagram and draws the following conclusion:
(I) On entering prism, the light ray bends towards its base.
(II) Light ray suffers refraction at the point of incidence and point of emergence while passing through the prism.
(III) Emergent ray bends at certain angle to the direction of the incident ray.
(IV) While emerging from the prism, the light ray bends towards the vertex of the prism.
Out of the above inferences, the correct ones are:
(a) (I), (II) and (III) (b) (I), (III) and (IV)
(c) (II), (III) and (IV) (d) (I) and (IV)
Ans. (a) (I), (II) and (III)
In a prism, the ray of light from air into glass bends towards the normal. The ray of light from glass to air bends away from the normal. In both cases, when a ray of light passes through a prism, it bends towards the base of the prism.

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

9. **Assertion (A):** Hypermetropia is the defect of the eye in which only farther objects are seen.
Reason (R): Hypermetropia is corrected by using converging lens.
Ans. (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

10. **Assertion (A):** A rainbow is always formed in the sky after a rain shower and in the same direction as sun.
Reason (R): Water droplets act like tiny prisms.
Ans. (d) Assertion (A) is false but reason (R) is true.
A rainbow is always formed in the sky in a direction opposite to that of the sun. The water droplets present in the sky act as tiny prisms, which refract and disperse sunlight, then reflect it internally and finally refract it again when it comes out of the raindrop.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Varun instead of copying from the black board used to copy regularly from the notebook of his friend, Sudhir with whom he sat on the same desk. Sudhir told the teacher about it. The teacher asked Varun to get his eyes checked by a doctor and explained to the whole class the reason why Varun copied from Sudhir's notebook.
(a) What in your view, is wrong with Varun's eyes and how can it be corrected?
(b) If the doctor prescribes Varun to use lenses of power – 0.5 D, what is the type of the lenses?
Ans. (a) Varun is suffering from the defect of vision Myopia.
Myopia can be corrected by using concave lens of appropriate power.
(b) Power of lens = – 0.5 D. This means it is a concave lens.

12. Why is Tyndall effect shown by colloidal particles? State four instances of observing the Tyndall effect.

Ans. Tyndall effect is shown by colloidal particles because the colloidal particles size are roughly equal to the wavelength of the light.

Four instances of observing tyndall effect are:

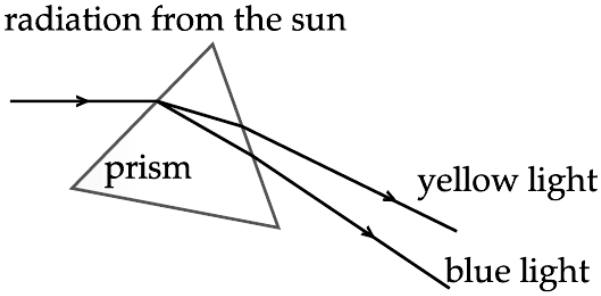
(i) In fog.

(ii) When light passes through canopy in forest.

(iii) Blue colour of the sky.

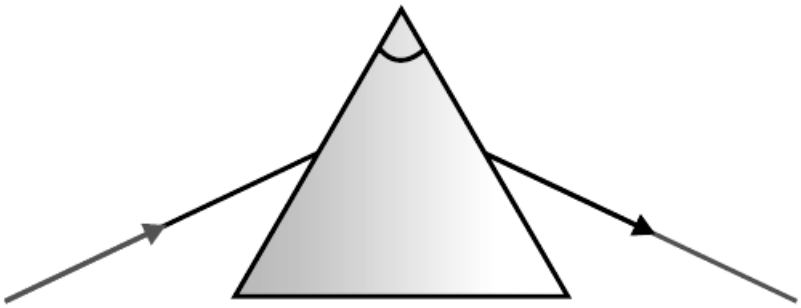
(iv) When light passes through the milk.

13. State the phenomena observed in the given diagram. Explain with reference to the diagram, which of the two lights mentioned above will have the higher wavelength?

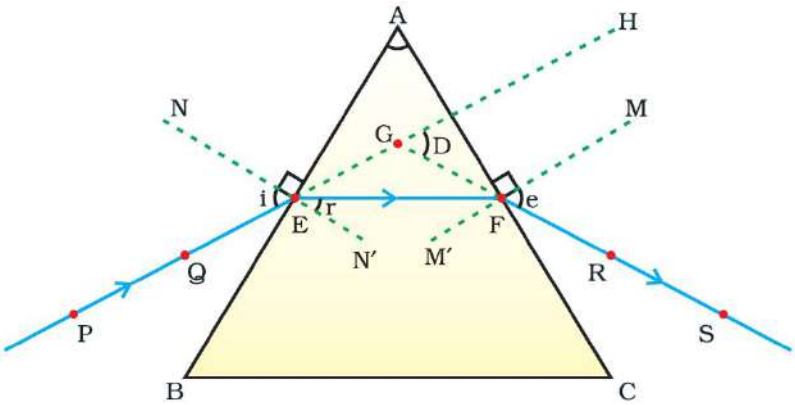


Ans. Dispersion- The splitting of white light into seven colours on passing through a prism. Velocity is directly proportional to wavelength given constant frequency. So yellow will have greater wavelength than blue as the velocity of yellow light is greater than blue.

14. A student traces the path of a ray of light through a glass prism as shown in the diagram, but leaves it incomplete and unlabelled. Redraw and complete the diagram. Also label on it ∠i, ∠e, ∠r and ∠D.



Ans. Labelling of ∠i, ∠e, ∠r and ∠D



SECTION – C

Questions 15 to 17 carry 3 marks each.

15. (a) What is visible spectrum?
(b) Why is red used as the stopping light at traffic signals?
(c) Two triangular glass prisms are kept together connected through their rectangular side. A light beam is passed through one side of the combination. Will there be any dispersion? Justify your answer.
Ans. (a) Visible spectrum is the band of coloured components of a white light beam.
(b) Red light is scattered the least by air molecules and has longer wavelength. It travels the long distance.
(c) The given setup will behave like a glass slab, resulting in recombination of the seven colours to produce white light. There will not be any dispersion.

OR

Due to gradual weakening of ciliary muscles and diminishing flexibility of the eye lens a certain defect of vision arises. Write the name of this defect. Name the type of lens required by such persons to improve the vision. Explain the structure and function of such a lens.
Ans. The defect of vision that arises due to gradual weakening of ciliary muscles and diminishing flexibility of the eye lens is presbyopia. Most people find it difficult to see nearby objects comfortably and clearly without using corrective lenses. This is corrected by using convex lens of appropriate power.
However, sometimes people may suffer from both myopia and hypermetropia. This can be corrected by using a bifocal lens.
A bifocal lens consists of two parts – the upper part is concave lens and lower part is convex lens. The upper part is for viewing distant objects and the lower part facilitates near vision.

16. (i) A person is suffering from both myopia and hypermetropia.
(a) What kind of lenses can correct this defect?
(b) How are these lenses prepared?
(ii) A person needs a lens of power +3D for correcting his near vision and –3D for correcting his distant vision. Calculate the focal lengths of the lenses required to correct these defects.
Ans. (i) (a) Bi-focal lenses can correct this defect.
(b) Upper portion of these lenses consists of a concave lens (to correct myopia) and the lower portion consists of a convex lens (to correct hypermetropia).

(ii) $P = \dfrac{1}{f(m)}$

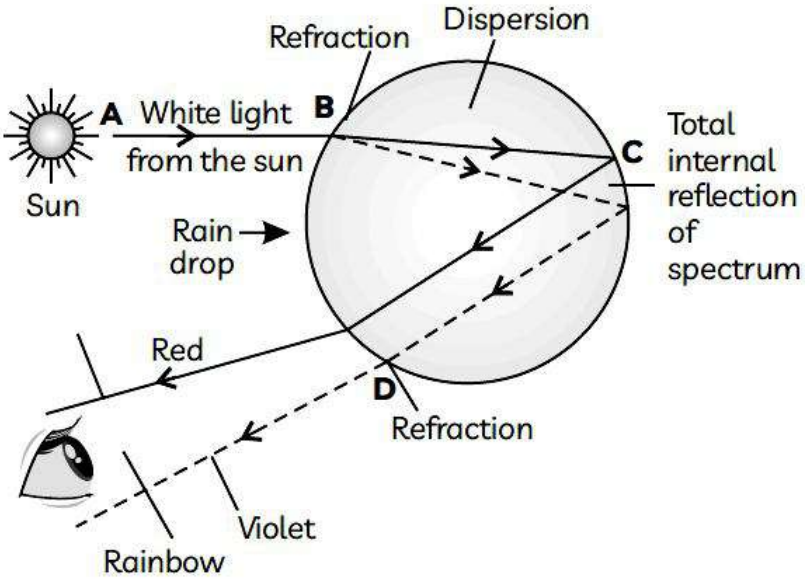
$$P_1 = +3D \Rightarrow f_1 = \frac{1}{P} = \frac{1}{3} = +0.33 = 33.3cm$$

$$P_2 = -3D \Rightarrow f_1 = \frac{1}{P} = \frac{1}{-3} = -0.33 = -33.3cm$$

17. What is scattering of light? Why is the colour of the clear sky blue? Explain.
Ans. Scattering of light is the phenomenon of change in the direction of light on striking an obstacle like an atom, a molecule, dust particle, water droplet, etc.
The blue colour of the sky is due to the scattering of sunlight by a large number of molecules such as fine dust particles, gases, water vapour, etc. present in Earth's atmosphere. Due to the very small size of the scatterer as compared to the wavelength of light, light of smaller wavelength, such as blue, is scattered the most as compared to light of longer wavelength.

OR

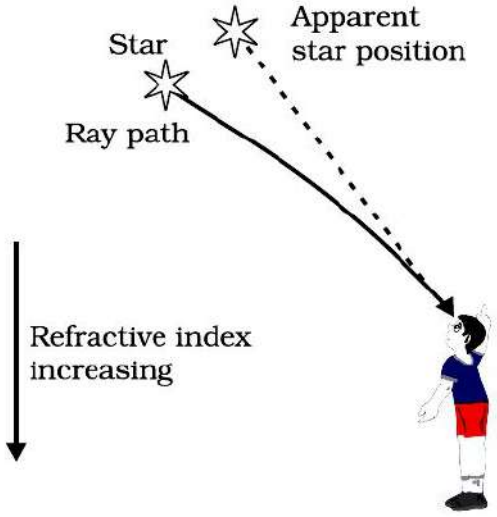
Tiny droplets of water are responsible for the natural spectrum formed in the sky after a rain shower. What is that spectrum known as? Draw a labelled diagram to show the formation of a rainbow.
Ans. The spectrum is known as rainbow, formed by dispersion of sunlight by tiny water droplets.



SECTION – D

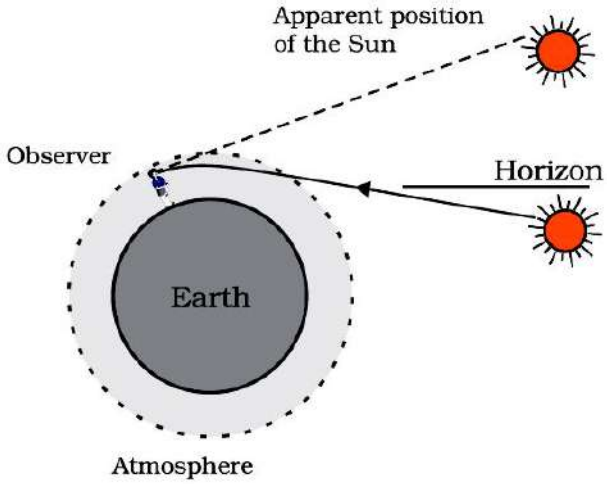
Questions 18 carry 5 marks.

18. What is atmospheric refraction? Use this phenomenon to explain the following natural events.
(a) Twinkling of stars
(b) Advanced sunrise and delayed sunset.
Draw diagrams to illustrate your answers.
Ans: Atmospheric Refraction: The refraction of light caused by the earth's atmosphere due to gradual change in the refractive indices of its different layers by the varying conditions of it, is called atmospheric refraction.
(a) Twinkling of stars
The hot layers (low densities) of air at a high altitude, behave as an optically rarer medium for the light rays, whereas the cold dense layers (high densities) of air near the earth's surface, behave as an optically denser medium for the light rays. So, when the light rays (starlight) pass through the various layers of atmosphere, they will get deviated and bent toward the normal. As a result, the apparent position of star is slightly different from its actual position. Thus, the stars appear slightly higher (above) than their actual positions in the sky.



The fluctuation in the positions of the stars occurs continuously due to the changing amount of light entering the eye. The stars sometimes appear brighter and at some other times, they appear fainter. This causes twinkling of stars.
(b) Advanced sunrise and delayed sunset
The sun is visible 2 minutes before sunrise and 2 minutes after sunset because of atmospheric refraction. This can be explained as below.

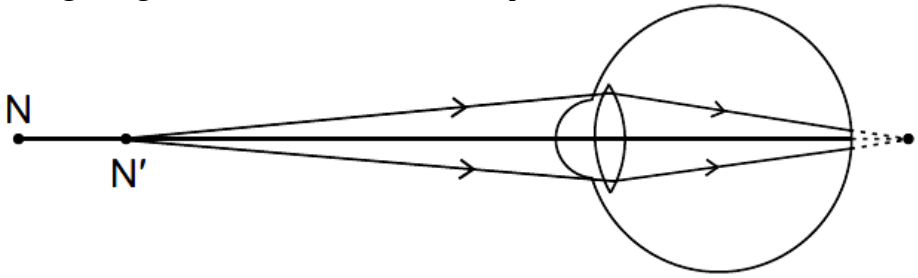
The figure shows the actual position of the sun S at the time of sunrise or sunset, just below the horizon while the apparent position S′, above the horizon as appear to us.



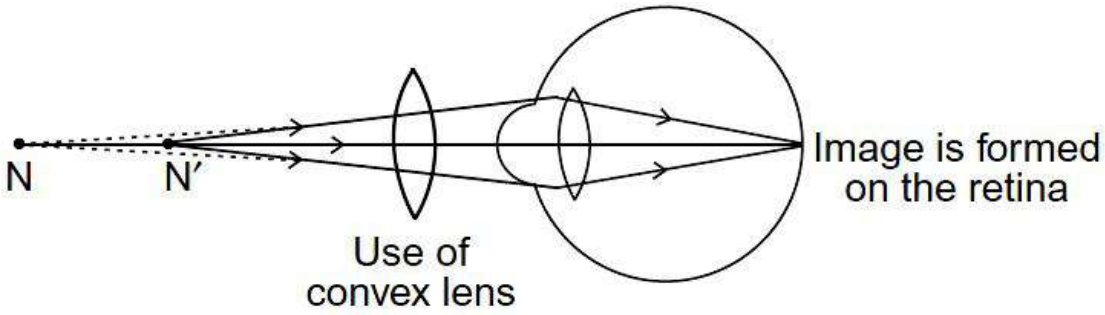
When the sun is slightly below the horizon, the light rays move through the different layers of varying refractive indices of air and get bent towards the normal. These rays appear to come from S′, which is the apparent position of the sun. That is why, the sun is visible to us when it has been actually below the horizon or before the actual crossing of horizon by the sun at the time of sunrise or sunset. So, due to the atmospheric refraction, the phenomenon of advanced advance sunrise and delayed sunset is observed.

OR

(i) Write the functions of each of the following parts of the human eye:
(a) Cornea
(b) Iris
(c) Crystalline (Eye) lens
(d) Ciliary muscles
(e) Retina
(ii) Study the diagram given below and answer the questions that follow:



(a) Name the defect of vision represented in the diagram. Give reason for your answer.
(b) With the help of a diagram show how this defect of vision is corrected.
Ans. (i) (a) Cornea: It focuses the light that enter the eye by refracting the light towards the lens.
(b) Iris : It regulates and controls the amount of light entering the eye by adjusting the size of the pupil.
(c) Crystalline Lens: It provides adjustment of focal length required to focus objects at different distances on the retina.
(d) Ciliary Muscles: It controls the focal length of the eye lens.
(e) Retina: It acts as a screen on which image is formed in the eye, converts incident light into electrical signals and sends them to the brain.
(ii) (a) Hypermetropia because light rays from a closeby object are focussed at a point behind the retina.
(b) This defect can be corrected by using a convex lens of appropriate power.

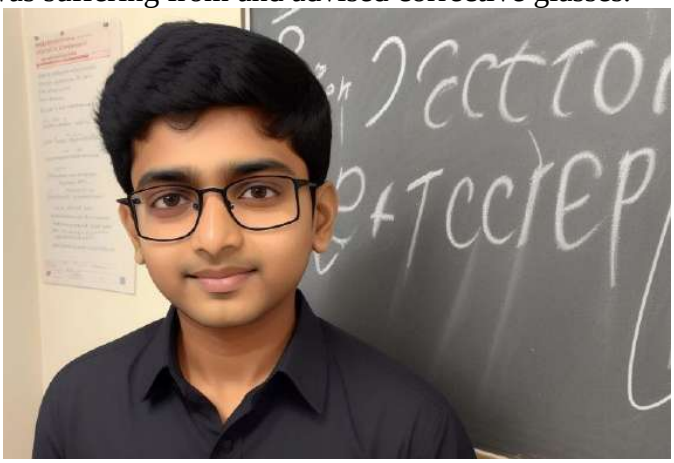


SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Read the given passage and answer the questions based on passage and related studied concepts.

Aditya, who was a back bencher in class, started complaining of frequent headaches. His parents took him to the nearest clinic and the doctor referred him to the eye specialist. The eye specialist tested his vision and asked Aditya whether he was able to read whatever the teacher wrote on the black board clearly or not. He replied in the negative. The doctor told his parents about the defect of vision that Aditya was suffering from and advised corrective glasses.



After wearing the glasses, Aditya was now able to read the black board clearly and also got rid of his headache.

(a) What type of defect is Aditya suffering from? What are the causes of this defect? (2)

(b) Where is image formed in Aditya's eyes? What type of lens is required to correct this defect? Draw the (i) defected eye of Aditya (ii) correction for this defect. (2)

OR

(b) The far point of a myopic person is 50 cm in front of the eyes. What will be the nature and power of the lens required to correct their problem? (2)

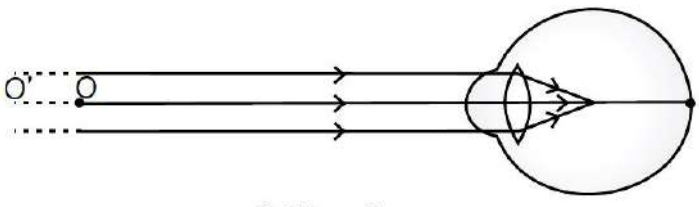
Ans. (a) Aditya is suffering from myopia. Myopia is also known as near-sightedness Aditya can see nearby objects clearly but cannot see distant objects clearly. for example his blackboard.

Causes of Myopia:

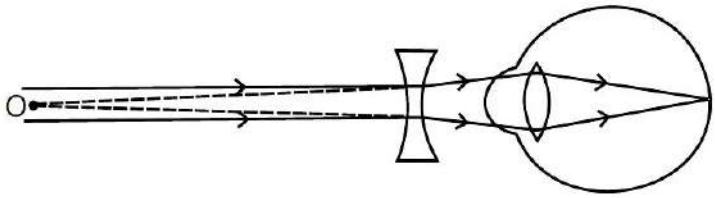
(i) Elongation of the eye ball

(ii) Excessive curvature of eye lens

(b) The image of a distant object is formed is front of the retina in case of a myopic person. A concave lens or diverging lens of suitable power is required to bring back the image back on to the retina and hence defect is corrected.



(i) Myopic eye



(ii) Correction for myopia

OR

(b) The far point on myopic person is 50 cm, As the focal length is always negative in concave lens.
focal length (f) = – 50 cm = – 0.5 m
Power = 1/ focal length (in m)
⇒ P = 1/(−0.5) ⇒ P = –2 D
Therefore, concave lens of power (2D) is required to correct the problem.

20. Aarush is a keen observer and loved the spectacular colours in a rainbow. He also observed the same pattern when he allowed sunlight to pass through a glass prism. He guessed that it is due to the inclined refracting surfaces of a glass prism which is responsible for showing such exciting phenomenon. Whereas, no such phenomenon was observed when light passes through a glass slab.

(a) Name the phenomenon which could explain the formation of rainbow.
(b) What is the band of colours known as? Explain the cause of formation of band of colours?
(c) Why don't we observe similar band of colours when light passes through a glass slab?
Ans. (a) The phenomenon which could explain the formation of rainbow is dispersion or splitting of light into its component colours.
(b) The band of coloured components of white light is known as spectrum of light. The cause for formation of spectrum of light is that different colours of light bend through different angles with respect to the incident ray as light passes through a prism.
(c) We don't observe splitting of white light into its component colours when light passes through a glass slab because the refracting surfaces in a glass slab are parallel to each other whereas they are inclined at an angle in a glass prism