PRACTICE EXERCISE 11.1

Q1. What kind of lens is present in the human eye?

Q2. Name two parts of the eye which refract light rays (or bend light rays).

Q3. Name the part of the eye:
(a) Which controls the amount of light entering the eye.
(b) On which the image is formed.
(c) Which changes the focal length of eye - lens.

Q4. Where is the image formed in a human eye?

Q5 What is the function of the lens in the human eye?

Q6. What job does the pupil of the eye do?

Q7 How does the eye adjust to take account of an increase in brightness?

Q8 name that part of the eye which is equivalent to the photographic film in a camera.

Q9 Name the part of retina which is insensitive of light?

Q10. Which part of the eye contains cells which are sensitive to light?

Q11. Name two types of cells in the retina of an eye which respond to light.

Q12. Out of rods and cones in the retina of your eye
(a) Which detect colour?
(b) Which work in dim light?

Q13. State whether the following statement is true or false: The image formed on our retina is upside - down.

Q14. What is the principal function of the eye-lens?

Q15. Where does the greatest degree of the refraction of light occur in the eye?

Q16. What changes the shape of lens in the eye?

Q17. What do the ciliary muscles do when you are focusing on a nearby object?

Q18. What is the least distance of distinct vision for a normal human eye?

Q19. What is the range of vision of a normal human eye?

Q20. Name the part of our eyes which helps us to focus near and distant objects in quick succession.

Q21. Define the term 'power of accomodation' of human eye.

Q22. Name one of the common defects of vision and the type of lens used to remove it.

Q23. What type of lens is used to correct:
(a) hypermetropia (b) myopia.

Q24. What is the other name for (a) myopia
(b) hypermetropia?

Q25. What is the scientific name of (a) short sightedness and (b) long - sightedness

Q26. Name the defect of vision in which the eye - lens loses its power of accomodation due to old age.

Q27. Name the defect of vision which makes the eye-lens cloudy resulting in blurred vision.

Q28. What is the other name of old age hypermetropia?

Q29. Name any two defects of vision which can be corrected by using spectacles.

Q30. Name the body part with which the terms myopia and hypermetropia are connected.

Q31. What is the far point of a person suffering from myopia(or short sightedness)?

Q32. What is the near point of a person suffering from hypermetropia (or long sightedness)?

Q33. Your friend can read a book perfectly well but cannot read the writing on blackboard unless she sits on the front row in class:
(a) Is she short - sighted or long sighted?
(b) What type of lens - converging or diverging - would an optician prescribe for her?

Q34. Why is normal eye not able to see clearly the objects placed closer than 25 cm?

Q35. What changes take place in the shape of eye - lens:
(a) When the eye is focused on a near object?
(b) When the eye is focused on a distant object?

Q36. What change is made in the eye to enable it to focus on objects situated at different distances? Illustrate your answer with the help of diagrams.

Q37. How is the amount of light entering the eye controlled.

PRACTICE EXERCISE 11.2

Q1. What happens to the eye when you enter a darkened cinema hall from bright sunshine? Give reason for your answer.

Q2. Why does it take some time to see objects in a dim room when you enter the room from bright sunshine outside?

Q3. A person walking in a dark corridor enters into a brightly lit room:
(a) State the effect of the pupil of the eye.
(b) How does this affect the amount of light entering the eye?

Q4. Ciliary muscles of human eye can contract or relax. How does it help in the normal functioning of the eye?

Q5. Describe and explain, how a normal eye can see objects lying at various distance clearly.

Q6. There are two types of light - sensitive cells in the human eye:
(a) Where are they found?
(b) What is each type called?
(c) To what is each type of cell sensitive?

Q7. What are rods and cones in the retina of an eye? Why is our night vision relatively poor compared to the night vision of an owl?

Q8. How does the convex eye - lens differ from the ordinary convex lens made of glass?

Q9. List, in order, the parts of the eye through which light passes to reach the retina.

Q10. What happens to the size of pupil of our eye (i) in dim light (ii) in bright light? Name the cells on the retina of an eye which are sensitive to (i) bright light (ii) dim light (iii) sensation of colour.

Q11. Draw a simple diagram of the human eye and label clearly the cornea, iris, pupil, ciliary muscles, eve- lens, retina, optic nerve and blind spot. Describe the working of the human eye with the help of the above diagram. How does the eye adjust itself to deal with light of varying intensity?

Q12. Explain the functions of the following parts of the eye: cornea, iris, pupil, ciliary muscles, eye -lens, retina, optic nerve.

Q13. If you walk from a dark room into sunlight and back again into dark room, how would your pupils alter in size? What makes this happen?

Q14. Explain why, we cannot see our seats first when we enter a darkened cinema hall from bright light but gradually they become visible.

Q15. The descriptions of five kinds of images are given below:
(a) diminished and virtual
(b) enlarged and real
(c) enlarged and erect
(d) real and inverted
(e) virtual and the same size

Q16. Which one of these describes the image formed:
(i) on the retina of the eye?
(ii) by a magnifying glass?
(iii) by a convex driving mirror on a car?
(iv) by a plane mirror?
(v) on the screen of a slide projector?
What shape are your eye-lens:
(a) when you look at your hand?
(b) when you look at a distant tree?

Q17. Suggest how your irises help to protect the retinas of your eyes from damage by bright light.

Q18. Which parts of the eye cause rays of light to converge on the retina?

Q19. Which part causes the greatest convergence?

Q20. Which part brings the image into sharp focus on the retina? How does it do this?

Q21. An object is moved closer to an eye. What changes must take place in the eye in order to keep the image in sharp focus?

Q22. Why does the eye-lens not have to do all the work of converging incoming light rays?

Q23. Explain why, when it is getting dark at night, it is impossible to make out the colour of cars on the road.

Q24. Nocturnal animals (animals which sleep during the day and come out at night) tend to have wide pupils and lot of rods in their retinas. Suggest reasons for this.

PRACTICE EXERCISE 11.3

Q1. Name one of the common defects of vision and the type of lens used to remove it.

Q2. Name the defect of vision in a person whose near point is more than 25 cm away.

Q3. Name the defect of vision in a person whose far point is less than infinity

Q4. Which defect of vision can be rectified by using a concave lens?

Q5. Which defect of vision can be rectified by using a convex lens.

Q6. What type of lens is used to correct
(a) hypermetropia {b) myopia?

Q7. What is the other name for (a) myopia
(b) hypermetropia?

Q8. What is the scientific name of (a) short-sightedness, and (b) long-sightedness?

Q9. What kind of lens is used to correct (a) short-sightedness {b) long-sightedness?

Q10. State whether the following statement is true or false:
Short-sightedness can be cured by using a concave lens.

Q11. Name the defect of vision in which the eye-lens loses its power of accommodation due to old age.

Q12. Name the defect of vision which makes the eye-lens cloudy resulting in blurred vision.

Q13. What is the other name of old age hypermetropia?

Q14. Name, any two defects of vision which can be corrected by using spectacles.

Q15. Name one defect of vision (or eye) which cannot be corrected by any type of spectacle lens.

Q16. Name the body part with which the terms myopia and hypermetropia are connected.

Q17. What is the far point of a person suffering from myopia (or short-sightedness)?

Q18. Where is the near point of a person suffering from hypermetropia (or long-sightedness)?

Q19. Your friend can read a book perfectly well but cannot read the writing on blackboard unless she sits on the front row in class. Is she short-sighted or long-sighted? What type of lens-converging or diverging-would an optician prescribe for her?

Q20. A man can read the number of a distant bus clearly but he finds difficulty in reading a book. From which defect of the eye is he suffering? What type of spectacle lens should he use to correct the defect?

Q21. A student sitting in the last row of the class-room is not able to read clearly the writing on the blackboard. Name the type of defect he is suffering from. How can this defect by corrected?

Q22. What are the two most common defects of vision (or defects of eye)? How are they corrected?

Q23. Differentiate between myopia and hypermetropia. What type of spectacles should be worn by a person having the defects of myopia as well as hypermetropia? How does it help?

Q24. Name the defect of vision which can be corrected by a converging lens. Show clearly by a ray diagram how the lens corrects the defect.

Q25. Name the defect of vision which can be corrected by a diverging lens. Show clearly by a ray diagram how the lens corrects the defect.

Q26. Explain with the help of labelled ray diagram, the defect of vision called myopia and how it is corrected by a lens.

Q27. Explain with the help of labelled ray-diagram, the defect of vision called hypermetropia, and how it is corrected by a lens.

Q28. A person suffering from the eye-defect myopia (short-sightedness) can see clearly only up to a distance of 2 metres. What is the nature and power of lens required to rectify this defect?

Q29. The near-point of a person suffering from hypermetropia is at 50 cm from his eye. What is the nature and power of the lens needed to correct this defect? (Assume that the near-point of the normal eye is 25 cm).

Q30. What is presbyopia? Write two causes of this defect. Name the type of lens which can be used to correct presbyopia.

PRACTICE EXERCISE 11.4 (MCQ)

Q1. The human eye forms the image of an object at its:
(a) cornea (b) iris
(c) pupil (d) retina

Q2. The change in focal length of an eye-lens is caused by the action of the:
(a) pupil (b) retina
(c) ciliary muscles (d) iris

Q3. The least distance of distinct vision for a young adult with normal vision is about:
(a) 25 m (b) 2.5 cm
(c) 25 cm (d) 2.5 m

Q4. Refraction of light in the eye occurs at:
(a) the lens only (b) the cornea only
(c) both the cornea and the lens
(d) the pupil

Q5. To focus the image of a nearby object on the retina of an eye:
(a) the distance between eye-lens and retina is increased
(b) the distance between eye-lens and retina is decreased
(c) the thickness of eye-lens is decreased
(d) the thickness of eye-lens is increased

Q6. The term "accommodation" as applied to the eye, refers to its ability to:
(a) control the light intensity falling on the retina
(b) erect the inverted image formed on the retina
(c) vary the focal length of the lens
(d) vary the distance between the lens and retina

Q7. Which of the following controls the amount of light entering the eye?
(a) ciliary muscles (b) lens
(c) iris (d) cornea

Q8. The human eye possesses the power of accommodation. This is the power to:
(a) alter the diameter of the pupil as the intensity of light changes
(b) distinguish between lights of different colours
(c) focus on objects at different distances
(d) decide which of the two objects is closer.

Q9. How does the eye change in order to focus on near or distant objects?
(a) The lens moves in or out
(b) The retina moves in or out
(c) The lens becomes thicker or thinner
(d) The pupil gets larger or smaller

Q10. Which of the following changes occur when you walk out of bright sunshine into a poorly lit room?
(a) the pupil becomes larger
(b) the lens becomes thicker
(c) the ciliary muscle relaxes
(d) the pupil becomes smaller

Q11 The size of the pupil of the eye is adjusted by:
(a) cornea (b) ciliary muscles
(c) optic nerve (d) iris

Q12. The human eye can focus objects at different distances by adjusting the focal length of the eye-lens. This is due to:
(a) presbyopia (b) accommodation
(c) near-sightedness (d) far-sightedness

Q13. The defect of vision which cannot be corrected by using spectacles is:
(a) myopia (b) presbyopia
(c) cataract (d) hypermetropia

Q14. A person cannot see the distant objects clearly (though he can see the nearby objects clearly). He is suffering from the defect of vision called
(a) cataract (b) hypermetropia
(c) myopia (d) presbyopia

Q15. Though a woman can see the distant objects clearly, she cannot see the nearby objects clearly. She is suffering from the defect of vision called: \
(a) long-sight (b) short-sight
(c) hind-sight (d) mid-sight

Q16. A young man has to hold a book at arm's length to be able to read it clearly. Defect of vision is:
(a) astigmatism (b) myopia
(c) presbyopia (d) hypermetropia

PRACTICE EXERCISE 11.5 (NUMERICALS)

Q1. The far point of a myopic eye is 50 cm. Calculate the power of the lens to correct his vision. [**Ans:** –2D]

Q2 The far point of a myopic eye is 80 cm infront of the eye. What is the power of the lens required to enable him to see very distant object clearly. [**Ans:** –1.25 D]

Q3. The near point of a hypermetropic eye is at 75 cm from the eye. What is the power of the lens required to enable him to read clearly a book held at 25 cm from the eye? [**Ans:** 2.66 D]

Q4. A person cannot see the object distinctly, when placed at a distance less than 100 cm. What is the power of the spectacles that he should use to see clearly the objects placed at 25 cm. [**Ans:** 3D]

Q5. A short sighted person cannot see clearly beyond 2m. Calculate power of the lens required to correct his eye to normal vision. [**Ans:** –0.5 D]

Q6. A myopic person can see things clearly only when they lie between 10 cm and 100 cm from the eye. Which lens will enable him to see the moon clearly. [**Ans:** P = –1D]

Q7. A person can see the objects lying between \25 cm and 100 cm from his eye. His vision can be corrected by using lens of power –0.1D. Is the statement true or false.

Q8. The distance of distinct vision of a person is 50 cm. He wants to read the book placed at 25 cm. What should be the focal length of the spectacles. [**Ans:** +50 cm]

Q9. A person wants to read a book placed at 20 cm, where as near point of his eye is 30cm, Calculate the power of the lens required. [**Ans:**1.67 D]

Q10. The far point of a myopic person is 4m. Calculate the power of the lens he required to look at the stars. [**Ans:** –0.25D]

Q11. A myopic person uses specs of power –0.5 D. What is the distance of far point of his eye. [**Ans:** 2m]

Q12. The near point of a hypermetropic eye is 50 cm. Calculate the power of the lens to enable him to read a book at 40 cm. [**Ans:** 0.5 D]

Q13. An eye has a near point distance of 0.75 m. What sort of lens in spectacles would be needed to reduce. The near point distance to 25 cm? Also calculate the power of lens required. Is this eye long sighted or short sighted. [**Ans:** 2.67 D]

Q14. An eye has a far point of 2m. What type of lens is spectacles would be needed to increase the far point to infinity? Also calculate the power of lens required. Is this eye long - sighted or short - sighted. [**Ans:** –0.5D]

Q15. A person having short sight cannot see objects clearly beyond a distance of 1.5 m. What would be the nature and power of the corrective lens to restore proper vision. [**Ans:** 0.67 D]

Q16. The near defect called hypermetropic eye is 1 m. What is the nature and power of lens required to correct this defect? [**Ans:** p = 3.3 D]

Q17. A person with a myopic eye cannot see objects beyond 1.2 m distinctly. What should be the nature of corrective lens used to restore proper vision? [**Ans:** –0.83 D concave lens]

Q18. A 52 - year old near sighted person wears eye - glasses with a power of -5.5 D for distance vision. His doctor prescribes a correction of +1.5 D in near vision section of his bi - focals. This is measured relative to main part of the lens.

(a) What is the focal length of his distance - viewing part of the lens?

(b) What is the focal length of the near vision section of the lens?

[**Ans:** (a) –18.2 cm (b) 66.7]

Q19. The far point of a myopic person is 80 cm infront of the eye. What is the nature and power of the lens required to correct the problem? [**Ans:** – 1.25 Dioptre]

Q20. Far point of a myopic person is 40 cm. What type of lens should he wear so as to see distant objects clearly? Give the focal length and Power of the lens in S.I. **[Ans:** f = –40 cm, P = –2.5 D**]**

PRACTICE EXERCISE 11.6

Q1. As light rays pass from air into a glass prism, are they refracted towards or away from the normal?

Q2. As light rays emerge from a glass prism into air, are they refracted towards or away from the normal?

Q3. Name a natural phenomenon which is caused by the dispersion of sunlight in the sky.

Q4. What information do we get about sunlight from the formation of a rainbow?

Q5. What did Newton demonstrate by his experiments with the prism?

Q6. What colours make up white light?

Q7. Give the meaning of the term VIBGYOR. With which phenomenon is it connected?

Q8. In the formation of spectrum of white light by a prism:
(i) which colour is deviated least?
(ii) which colour is deviated most?

Q9. What colours lie on the two sides of the 'green colour' in the spectrum of white light?

Q10. Name the scientist who discovered that sunlight consists of seven colours.

Q11. What is the order of colours in a rainbow, from the outside to the inside?

Q12. Which colour of the spectrum has (a) longest wavelength, and (b) shortest wavelength?

Q13. Which light has the longer wavelength: red light or blue light?

Q14. Which colour of light has the shorter wavelength - red or violet?

Q15. Fill in the blanks with suitable words:
(a) When a ray of light enters a prism, it bends the normal; as it leaves the prism, it bends the normal.
(b) White light is composed of colours. The colour of white light deviated through the largest angle by a prism is

Q16. Name the phenomenon which causes the twinkling of stars.

Q17. Name two effects produced by the atmospheric refraction.

Q18. Which phenomenon makes us see the sun:
(a) a few minutes before actual sunrise?
(b) a few minutes after actual sunset?

Q19. Atmospheric refraction causes advance sunrise and delayed sunset. By how much time is:
(a) sunrise advanced?
(b) sunset delayed?

Q20. State whether the following statement is true or false:
The planets twinkle at night due to atmospheric refraction of light.

Q21. What is the colour of the sunlight:
(a) scattered by the dust particles in the atmosphere?
{b) scattered by the air molecules in the atmosphere?

Q22. Which of the two is scattered more easily: light of shorter wavelengths or light of longer wavelengths?

Q23. State whether the following statements are true or false:
(a) The scattering away of red light makes the sky appear blue during the day time.
(b) The scattering away of blue light makes the sun appear red at sunset. What colour does the sky appear to an astronaut?

Q24. Which effect is illustrated by the observation that when a beam of sunlight enters a dusty room, then its path becomes visible to us.

Q25. State two effects produced by the scattering of light by the atmosphere.

Q28. When a beam of white light is passed through a prism, it splits to form lights of seven colours. Is it possible to recombine the lights of seven olours to obtain the white light again? Explain your answer.

Q29. Explain, why, when the sun is overhead at noon, it appears white but when the same sun is near the horizon at sunset, it appears red.

Q30. State whether the following statements are true or false:
(i) The scattering away of red light makes the sky appear blue during the day time.
(ii) The scattering away of blue light makes the sun appear red at sunset.

PRACTICE EXERCISE 11.7

Q1. A ray of white light breaks up into its components while passing through a glass prism. Draw a ray diagram to show the path of rays.

Q2. Mark the least deviated colour in your diagram.

Q3. Why do different coloured rays deviate differently in a prism?

Q4. What happens when a ray of ordinary light is passed through a triangular glass prism?

Q5. What will happen if another similar glass prism is placed upside down behind the first prism?

Q6. When a beam of white light is passed through a prism, it splits to form lights of seven colours. Is it possible to recombine the lights of seven colours to obtain the white light again? Explain your answer.

Q7. What is spectrum? What is the name of glass shape used to produce a spectrum?

Q8. How many colours are there in a full spectrum of white light? Write the various colours of spectrum in the order, starting with red.

Q9. What is meant by dispersion of white light? Describe the formation of rainbow in the sky with the help of a diagram.

Q10. Draw a diagram to show how white light can be dispersed into a spectrum by using a glass prism. Mark the various colours of the spectrum.

Q11. Make two diagrams to explain refraction and dispersion.

Q12. Describe how you could demonstrate that white light is composed of a number of colours.

Q13. How could you show that the colours of the spectrum combine to give white light?

Q14. Which is refracted most by a prism: red light or violet light? Explain why?

Q15. Why do stars seem higher than they actually are? Illustrate your answer with the help of a diagram.

Q16. Explain why, the sun can be seen about two minutes before actual sunrise. Draw a diagram to illustrate your answer.

Q17. Explain why, if we look at objects through the hot air over a fire, the objects appear to be moving (or shaking) slightly.

Q18. What is tyndall effect? Explain with an example.

Q19. What happens when a beam of sunlight enters a dusty room through a window? Explain your answer.

Q20. Draw a diagram to show the refraction of light through a glass prism. On this diagram, mark (i) incident ray (ii) emergent ray, and (iii) angle of deviation.

Q21. What is a rainbow? What are the two conditions necessary for the formation of a rainbow in the sky?

Q22. What acts as tiny prisms in the formation of a rainbow?

Q23. Name the process which is involved in the formation of a rainbow.

Q24. What are the seven colours seen in a rainbow?

Q25. What is atmospheric refraction? What causes atmospheric refraction?

Q26. Why do stars twinkle on a clear night?

Q27. Explain why, the planets do not twinkle at night.

Q28. Draw a neat and labelled diagram of the experimental set up for observing the scattering of light in a colloidal solution of sulphur to show how the sky appears blue, and the sun appears red at sunrise and sunset.

Q29. Out of blue light and red light, which one is scattered more easily?

Q30. Which component of sunlight is scattered away when the sun appears red at sunrise or sunset?

Q31. What causes the scattering of blue component of sunlight in the atmosphere?

Q32. What is triangular glass prism?

Q33. What is dispersion of light? Why does it take place?

Q34. What happens when a second identical prism is placed in an inverted position with respect to the first prism. What does it show?

Q35. Who discovered that the sunlight consists of seven colours?

Q36. When the star is viewed near the horizon it appears higher or lower than its actual position. Why?

PRACTICE EXERCISE 11.8 (MCQ)

Q1. A beam of white light is shone onto a glass prism. The light cannot be:
(a) deviated (b) dispersed
(c) focused (d) refracted

Q2. A beam of white light falls on a glass prism. The colour of light which undergoes the least bending on passing through the glass prism is:
(a) violet (b) red
(c) green (d) blue

Q3. The colour of white light which suffers the maximum bending (or maximum refraction) on passing through a glass prism is:
(a) yellow (b) orange
(c) red (d) violet

Q4. Which of the following colour of white light is least deviated by the prism?
(a) green (b) violet
(c) indigo (d) yellow

Q5. The colour of white light which is deviated the maximum on passing through the glass prism is:
(a) blue (b) indigo
(c) red (d) orange

Q6. The splitting up of white light into seven colours on passing through a glass prism is called:
(a) refraction (b) deflection
(c) dispersion (d) scattering

Q7. Which of the following coloured light has the least speed in glass prism?
(a) violet (b) yellow
(c) red (d) green

Q8. The coloured light having the maximum speed in glass prism is:
(a) blue (b) green
(c) violet (d) yellow

Q9. Which of the following colour of white light has the least wavelength?
(a) red (b) orange
(c) violet (d) blue

Q10. Out of the following, the colour of light having the maximum wavelength is:
(a) violet (b) indigo
(c) green (d) orange

Q11. The twinkling of stars is due to atmospheric:
(a) reflection of light
(b) dispersion of light
(c) interference of light
(d) refraction of light

Q12. The atmospheric refraction of light causes the twinkling of:
(a) planets only (b) stars only
(c) planets and stars
(d) stars and satellites

Q13. The stars appear higher in the sky than they actually are, due to:
(a) diffraction of light
(b) scattering of light
(c) refraction of light
(d) reflection of light

Q14. The stars twinkle but the planets do not twinkle at night because:
(a) the stars are small but the planets are large
(b) the stars are very large but planets are small
(c) the stars are much nearer but planets are far off.
(d) the stars are far off but planets are nearer to earth

Q15. As light from a far off star comes down towards the earth:
(a) it bends away from the normal
(b) it bends towards the normal
(c) it does not bend at all
(d) it is reflected back

Q16. We can see the sun before the actual sunrise by about:
(a) 5 minutes (b) 2 minutes
(c) 2 hours (d) 20 minutes

Q17. Due to atmospheric refraction of sunlight, the time from sunrise to sunset is lengthened by about:
(a) 6 minutes (b) 2 minutes
(c) 4 minutes (d) 5 minutes

Q18. The blue colour of sky is due to:
(a) refraction of light (b) dispersion of light
(c) diffraction of light (d) scattering of light

SOLVED ADDITIONAL QUESTIONS

Q1. **Name the most valuable and sensitive sense organ, which nature has endowed on us to see the wonderful world of light and colour.**

Sol. The human eye.

Q2. **What is the nature of the image formed of the object on the retina of the eye?**

Sol. The image formed is inverted and real.

Q3. **How does an eye lens differ from a lens made of glass?**

Sol. A glass lens has a fixed thickness and therefore, a fixed focal length whereas thickness of eye lens and their focal length can be changed.

Q4. **What is the power of accomodation of a normal eye?**

Sol. A normal eye has a power of accomodation which enables objects as far as infinity and as close as 25 cm to be focused on the retina.

Q5. **What is the time for which the impression or sensation of the object remains on the retina even after the removal of the object?**

Sol. The impression or sensation remains on the retina for about (1/16th) of a second even after removal of the object.

Q6. **What is the advantage of having two eyes instead of one in human beings?**

Sol. Two eyes give a wider field of view. A human being has a horizontal field of vision of about of 150^{o} with one one eye and of about 180^{o} with two eyes. The ability to detect faint object is enhanced with two eyes instead of one.

Q7. **Where are the two eyes positioned in prey animals? Why?**

Sol. In prey animals two eyes are positioned on opposite sides of their heads to the widest possible field of view.

Q8. **How does the world look like when**
(i) one eye is shut?
(ii) both eyes are open?

Sol. (i) When one eye is shut, the world looks flat - two dimensional.
(ii) When both eyes are open, the world looks three dimensional.

Q9. **What happens when the eye of a person loses its power of accomodation?**

Sol. On losing the power of accomodation the eye of a person cannot see the objects distinctly and comfortably without strain on his eyes.

Q10. **What is triangular glass prism?**

Sol. Triangular glass prism has two triangular bases and three rectangular lateral surface inclined to each other.

Q11. **What is dispersion of light? Why does it take place?**

Sol. The phenomenon of the splitting of white light into its seven component colours is called dispersion of light. Splitting of white light into its component colours is due to this fact that the deviation of colours from the original path is different for different wavelength.

Q12. **What happens when a second identical prism is placed in an inverted position with respect to the first prism. What does it show?**

Sol. A beam of white light emerges from the other side of the second prism. This shows that sunlight is made up of seven colours.

Q13. **Who discovered that the sunlight consists of seven colours?**

Sol. Sir Issac Newton (1642 - 1727) discovered that the sunlight consists of seven colours.

Q14. **When the star is viewed near the horizon it appears higher or lower than its actual position. Why?**

Sol. The star appears slightly higher (above) than its actual position. The distance of star from the horizon is maximum and hence bending of light is maximum as there are more layers of atmosphere in the starlight's path.

Q15. **Which of the following scatter light: true solution or colloidal solution?**

Sol. Collodial solution scatters light.

Q16. **Can we observe tyndall effect when sunlight passes through a conopy of a dense forest? Why?**

Sol. Yes, we observe tyndall effect when sunlight passes through a conopy of a dense forest because tiny water droplets in the mist scatter light.

Q17. **Which colour of light is mainly scattred by very fine particles?**

Sol. Blue light is mianly scattred by very fine articles.

Q18. **Which light is mianly scatterd by large size particles?**

Sol. Light having long wavelengths (red) is scattered by large size particles.

Q19. **Compare the wavelength of red and blue light?**

Sol. The wavelength of red light is about 1.8 times greater than that of blue light.

Q20. **Why does it take some time to see objects in a dim room when you enter the room from bright sunlight outside?**

Sol. In the bright sunlight, the pupil of our eye is very small. Now, when we enter a dim room where there is much less light, the pupil has to expand and become bigger to allow more light to enter the eyes. This adjustement of pupil from small size to large size takes some time due to which it takes some time to see the objects in a dim room when we enter it from bright sunlight outside.

Q21. **Why do stars twinkle?**

Sol. The twinking of a star is due to the atmospheric refraction when the light coming from a star enters the earth's atmosphere, it undergoes refraction due to the different densities of air layers at various altitudes. The densities of atmosphere is continuously changing due to this atmosphere refracts the light from the stars by different amounts from one moment to the next. When the atmosphere refracts more star - light towards us, the star appears to be bright and when the atmosphere refracts less star - light, then the star appears to be dim. In this way, the star - light reaching our eyes increases and decreases continuously due to atmospheric refraction. And the star appears to twinkle at night.

Q22. **Explain why the planets do not twinkle.**

Sol. The planets appear to be quite big to us. So, a planet can be considered to be a collection of a very large number of point sources of light. The dimming effect produced by some of the point sources of light in one part of the planet is nullified by the brighter effect produced by the point sources of light in its other part. Thus, on the whole, the brightness of a planet always remains the same and hence it does not appear to twinkle.

Q23. **Why is the colour of the clear sky blue?**

Sol. The molecules of air and other fine particles in the atmosphere have size smaller than the wavelength of the visible light. These small molecules of air and fine particles in the atmosphere scatter blue colour. The scattered blue light enters our eyes and thus colour of the sky appears blue.

Q24. **Why are 'danger' signals lights red in colour?**

Sol. 'Danger' signals lights are red in colour because red is least scattred by fog or smoke and therefore, it can be seen in the same colour at a distance.

Q25. **Why do we observe an apparent random wavering or flickering of objects seen through a turbulent stream of hot air rising above fire, a stove or radiator?**

Sol. The air just above the fire become hotter than air further rises up. Hotter air is lighter and less denser than the cooler air which is denser above it. It produces refraction of light. Thus results in wavering of objects seen through air due to decrease of refractive index with decreasing density or increasing temperature of air.

PRACTICE EXERCISE 11.9

Q1. What is far point of a normal human eye?

Q2. Is cornea transparent to light?

Q3. Which type of retinal cells respond to brightness of light?

Q4. What is Accommodation?

Q5. How many frames for second are to be projected for clear view of motion pictures?

Q6. Which colour suffers least deviation on passing through a prism?

Q7. Where do we use cylindrical lenss?

Q8. What is the power of accommodation of normal human eye?

Q9. A man wearing glasses of focal length +1m cannot see object clearly beyond 1m. What is the defect in the eye?

Q10. Name the type of a lens used to correct preshyopia.

Q11. A child can read his book easily but is unable to read the matter written on the blackboard. Name the defect of eye from which he is suffering.

Q12. Name the phenomenon occuring in nature due to dispersion of light.

Q13. What is Tyndall effect?

Q14. What kind of lens is there in human eye?

Q15. What type of cells are lacking in a person who is colour blind?

Q16. Fill in the blanks: When ray of light enters a prism, it bends _____ the normal; as it leaves the prism, it bends _____ the normal.

Q17. Which of the two is scattered more easily: light of shorter wavelength or light of longer wavelengths?

Q18. Name the type of a lens used to correct hypermetropic eye.

Q19. How is a cataract caused in human eye?

Q20. How is the intensity of scattered light dependent on the wavelength of incident light?

Q21. What enables the eye to focus object at different distances?

Q22. Explain, why do stars twinkle?

Q23. How do we see colours?

Q24. We can see the sun for few minutes even after it has actually set. Explain, why?

Q25. What is hypermetropia? How is it corrected?

Q26. Why does the sun appear oval at sunset and sunrise but appears circular at noon?

Q27. Briefly discuss recombination of colours of dispersed light?

Q28. Why sunset and sunrise and red? Explain.

Q29. What is the condition for Rayleigh elastic scattering?

Q30. Draw a block diagram of human eye and name all its important parts.

Q31. How does eye view different colours? What is colour blindness?

Q32. How is the amount of light entering the eye controlled? What change is made in the eye to enable it to focus on object situated at different distances

Q33. Why plants do not twinkle?

Q34. Give two exmaples of this phenomenon in daily life situations.

Q35. Name the primary colours and composite colours.

Q36. If the far point of eye lens is 10 metre, find the power required to correct the defect.

Q37. Draw a ray diagram to show a hypermetropic eye. Give a way to rectify the same.

Q38. Calculate the magnification of a glass of focal length 5cm, when the image is formed at the distance of distant vision.

Q39. With the help of ray diagram show the phenomenon of total internal reflection of light and the concept of critical angle for a transparent medium.

Q40. The near point of a hypermetropic person is 75cm. If the person uses eye-glasses having power +1.6D, calculate the distance of distinct vision for him.

Q41. What are optical fibres? Give three applications of these fibres.

Q42. Describe with a neat diagram how near sightedness (Myopia) can be corrected by using appropriate lenss.

PRACTICE EXERCISE 11.10

Q1. How does a normal eye see clearly objects at various distances?

Q2. What is the near point of a normal human eye?

Q3. What happens to the eye when you enter a darkened cinema hall from bright sunshine? Give reason for your answer.

Q4. Name the part of the eye which is equivalent to the photographic film in a camera.

Q5. What is meant by 'persistence of vision'?

Q6. Write two causes of myopia.

Q7. What kind of lens is present in the human eye?

Q8. What is the range of vision of a normal human eye.

Q9. What are the two most common defect of eye? How are they corrected?

Q10. A child sitting in the class-room is not - able to read clearly the writing on the black board. Name the type of defect from which he is suffering.

Q11. A man can read the number of a distant object bus clearly but he finds difficulty in reading a book. From which defect of the eye is he suffering.

Q12. What is the scientific name of

(a) Near - sightedness

(b) Far - sightedness

Q13. Write two causes of hypermetropia.

Q14. Which defect eye can be rectified by using a convex lens.

Q15. What do you understand by the term long sighted eye?

Q16. As light rays emerge from a glass prism into air, are they refracted towards or away from the normal?

Q17. What is meant by 'dispersion of light'.

Q18. What is spectrum.

Q19. Why do different coloured rays deviate differently in a prism.

Q20. What did Newton demonstrate by his experiments with the prism?

Q21. Give the meaning of the term VIBGYOR. With which phenomenon is it connected?

Q22. (a) What happens when a ray of ordinary light passed through a triangular glass prism? (b) What will happen if another similar glass prism is placed upside down behind the first prism?

Q23. What is a rainbow? How is rainbow produced?

Q24. What is meant by 'persistence of vision'.

Q25. Define the term "power of accomodation" of human eye.

Q26. Explain, why we cannot see our surroundings clearly when we enter a darkened cinema hall from bright sunshine but our vision improves after some time.

Q27. What is colour blindness? What kind of retinal cells are lacking in a person suffering from this defect?

Q28. What are the two most common defects of eye? How are they corrected?

Q29. Differentiate between myopia & hypermetropia.

Q30. Name the scientist who discovered that sunlight consists of seven colours.

Q31. How does a normal eye see clearly objects at various distances?

Q32. What is presbyopia? Name the type of lens which can be used to correct presbyopia.

Q33. Name a natural phenomenon which is caused by the dispersion of sunlight in the sky.

Q34. Draw a labelled diagram to show the formation of a rainbow.

PRACTICE EXERCISE 11.11

Q1. What information do we get about sunlight from the formation of a rainbow?

Q2. Why do stars twinkle on a clear night?

Q3. Name the phenomenon which causes the twinkiling of stars.

Q4. Name four defects of vision which can be corrected by using spectacles.

Q5. When a person said to have developed cataract in his eye? How is the vision of a person having cataract restorted?

Q6. Explain with the help of a labelled ray - diagram, the defect of vision called myopia and how it is corrected by a lens.

Q7. Explain with the help of a ray - diagram, the defect of vision called hypermetropia, and how it is corrected by a lens.

Q8. With the help of a labelled diagram, describe the construction and working of a compound microscope.

Q9. Why do stars seen higher than thay actually are?

Q10. Name two effects produced by the atmospheric refraction.

Q11. Which phenomenon makes us see the sun a few minutes: (a) before actual sunrise, and (b) after actual sunset?

Q12. What is atmospheric refraction? What causes atmospheric refraction?

Q13. Explain, why the planets do not twinkle at night.

Q14. What is Tyndall effect? Explain with an example.

Q15. Which of the two is scattered more easily: light of shorter wavelengths or light of longer wavelengths?

Q16. Why does sky appear blue?

Q17. What causes the scattering of blue component of sunlight in the atmosphere.

Q18. State one effect produced by the scattering of light by the atmosphere?

Q19. Why does the sun appear red at sunrise?

Q20. Why does the sun appear red at sunset?

Q21. Why does the sky appear dark and black to an astronaut instead of blue?

Q22. Which component of sunlight is scattered away when the sun appears red at sunrise or sunset?

Q23. Why are 'danger' signals red in colour?

Q24. Atmospheric refraction causes advance sunrise and delayed sunset. By how much time is: (a) sunrise advanced, and (b) sunset delayed?

Q25. As light rays pass from air into a glass prism, are they refracted towards or away fromn the normal?

Q26. A ray of white light breaks up into its components while passing through a glass prism. Draw a ray diagram to show the path of rays. Mark the least deviated colour in your diagram.

Q27. In the formation of spectrum of white light by a prism:

(i) which colour is deviated least?

(ii) which colour is deviated most?

Q28. When a beam of white light is passed through a prism, it splits to form lights of seven colours. Is it possible to recombine the lights of seven colours to obtain the white light again? Explain your answer.

Q29. Explain, why, when the sun is overhead at noon, it appears white but when the same sun is near the horizon at sunset, it appears red.

Q30. State whether the following statements are true or flase:

(i) The scattering away of red light makes the sky appear blue during the day time.

(ii) The scattering away of blue light makes the sun appear red at sunset.

MULTIPLE CHOICE QUESTIONS

Q1. A human eye can form sharp images of different objects lying at different distances by changing the focal length of the eye lens on the retina. This is done due to:
(a) long – sightedness
(b) short – sightedness
(c) persistence of vision
(d) accomodation **[Ans: (d)]**

Q2. In a human eye, the image is formed at
(a) cornea (b) iris
(c) retina (d) pupil **[Ans: (c)]**

Q3. Least distance of distinct vision of a normal eye of an adult is
(a) 25 mm (b) 25 cm
(c) 25 m (d) None of these
[Ans: (b)]

Q4. The focal length of an eye lens changes to accomodate for clear vision of objects from the near and far point. This is done by
(a) optic nerve (b) iris
(c) cilliary muscle (d) retina **[Ans: (c)]**

Q5. A human eye is able to form the images of objects at different positions. This is done due to
(a) cataract (b) accomodation
(c) presbyopia (d) none of these
[Ans: (b)]

Q6. Convex lens of suitable focal length can correct
(a) short – sightedness
(b) long – sightedness
(c) presbyopia (d) astigmatism
[Ans: (b)]

Q7. Near point of an eye suffering from long – sightedness is
(a) 25 cm (b) less than 25 cm
(c) greater than 25 cm
(d) at infinity **[Ans: (c)]**

Q8. Myopic eye can be corrected by
(a) convex lens (b) cylindrical lens
(c) concave lens (d) bi – focal lens
[Ans: (c)]

Q9. The intensity of light of an eye controlled by
(a) retina (b) convex lens
(c) Iris & pupil (d) cornea
[Ans: (c)]

Q10. The focal length of an eye lens is controlled by
(a) iris (b) cornea
(c) ciliary muscles (d) optic nerve
[Ans: (c)]

Q11. The near point of a hypermetropic person is 50 cm. The focal length of a convex lens used in his spectacles should be
(a) 25 cm (b) 30 cm
(c) 40 cm (d) 50 cm
[Ans: (d)]

Q12. The part of the eye where optic nerve enters the eye
(a) pupil (b) ciliary muscle
(c) retina (d) blind spot
[Ans: (d)]

Q13. Splitting of white light into seven colours is known as:
(a) refraction (b) reflection
(c) interference (d) dispersion
[Ans: (d)]

Q14. Which of the following colours has the least wavelength?
(a) Red (b) Orange
(c) Violet (d) Blue
[Ans: (c)]

Q15. A white light falls on the glass prism. The least deviated colour is
(a) Violet (b) Orange
(c) Yellow (d) Red
[Ans: (d)]

Q16. The colour which deviates the most while passing through a glass prism is
(a) Violet (b) Orange
(c) Yellow (d) Red **[Ans: (a)]**

Q17. Rainbow is formed due to
(a) refraction and dispersion of light through a water droplet
(b) refraction, reflection and dispersion of light through a water droplet
(c) only dispersion of light
(d) only refraction of light **[Ans: (b)]**

Q18. Blue colour if sky is due to
(a) dispersion of light (b) scattering of light
(c) reflection of light (d) refraction of light
[Ans: (b)]

Q19. A candle flame, 3 cm high is 10 cm from a diverging lens of focal length 15 cm. The size of the image will be:
(a) 1.8 cm (b) 2.4 cm
(c) 3.2 cm (d) 3.8 cm
[Ans: (a)]

Q20. Which of the following factors is responsible for the refraction of light?
(a) Optical density (b) frequency of light
(c) angle of incidence
(d) mass density **[Ans: (a)]**

Q21. White colour of cloud is due to:
(a) dispersion (b) reflection
(c) refraction (d) scattering
[Ans: (d)]

Q22. A glass prism has:
(a) Six focus (b) Four focus
(c) Two triangular bases and three rectangular surface.
(d) None of these **[Ans: (c)]**

Q23. Which colour is at the lower end of visible spectrum :
(a) red (b) green
(c) yellow (d) violet
[Ans: (d)]

Q24. The order of colour from the lower end of visible spectrum is represented by
(a) VIBGYOUR (b) BIVGYOR
(c) ROYGBIV (d) BIGVYOR
[Ans: (a)]

Q25. Wavlength of violet colour is:
(a) 4000 Å (b) 5000 Å
(c) 6000 Å (d) 7000 Å
[Ans: (a)]

Q26. Wavlength of red colour is:
(a) 7900 Å (b) 6000 Å
(c) 5000 Å (d) 4000 Å
[Ans: (a)]

Q27. Dispersion of light through a prism is
(a) same as reflection
(b) same as refraction
(c) break down of light into seven colours
(d) None of these **[Ans: (c)]**

Q28. The blue colour of is sky due to:
(a) reflection (b) refraction
(c) scattering (d) dispersion
[Ans: (c)]

Q29. The stars twinkle due to
(a) reflection (b) atm. refraction
(c) scattering (d) dispersion
[Ans: (b)]

Notes:

MULTIPLE CHOICE QUESTION'S

Q1. The human eye forms the image of an object at is:

(a) Cornea (b) iris

(c) pupil (d) retina

Q2. The change in focal length of an eye-lens is caused by the action of the

(a) pupil (b) retina

(c) ciliary muscles (d) iris

Q3. The least distance of distinct vision for a young adult with normal vision is about:

(a) 25m (b) 2.5cm

(c) 25cm (d) 2.5m

Q4. Refraction of light in the eye occurs at:

(a) the lens only

(b) the cornea only

(c) both the cornea and the lens

(d) the pupil

Q5. To focus the image of a nearby object on the retina of an eye:

(a) the distance between eye-lens and retina is increased

(b) the distance between eye-lens and retina is decreased

(c) the thickness of eye-lens and retina is decreased

(d) the thickness of eye-lens is increased

Q6. The term "accommodation" as applied to the eye, refers to its ability to:

(a) control the light intensity falling on the retina

(b) erect the inverted image formed on the retina

(c) vary the focal length of the lens

(d) vary the distance between the lens and retina

Q7. Which of the following controls the amount of light entering the eye?

(a) ciliary muscles (b) lens

(c) iris (d) cornea

Q8. The human eye possesses the power of accommodation. This is the power to:

(a) alter the diameter of the pupil as the intensity of light changes

(b) distinguish between lights of different colours

(c) focus on objects at different distances

(d) decide which of the two objects is closer.

Q9. How does the eye change in order to focus on near or distance objects?

(a) The lens moves in or out

(b) The retina moves in or out

(c) The lens becomes thicker or thinner

(d) The pupil gets larger or smaller

Q10. Which of the following changes occur when you walk out of bright sunshine into a poorly lit room?

(a) the pupil becomes larger

(b) the lens becomes thicker

(c) the ciliary muscle relaxes

(d) the pupil becomes smaller

Q11. The size of the pupil of the eye is adjusted by:

(a) cornea

(b) ciliary muscles

(c) optic nerve

(d) iris

Q12. The human eye can focus objects at different distance by adjusting the focal length of the eye-lens. This is due to:

(a) presbyopia

(b) accommodation

(c) near-sightedness

(d) far-sightedness

Q13. The defect of vision which cannot be corrected by using spectacles is:

(a) myopia

(b) presbyopia

(c) cataract

(d) hypermetropia

Q14. A person cannot see the distant objects clearly (though he can see the nearby objects clearly.) He is suffering from the defect of vision called:

(a) cataract

(b) hypermetropia

(c) myopia

(d) presbyopia

Q15. Though a woman can see the distant objects clearly, she cannot see the nearby objects clearly). He is suffering from the defect of vision called:

(a) long-sight
(b) short-sight
(c) hind-sight
(d) mid-sight

Q16. A young man has to hold a book at arm's length to be able to read it clearly. The defect of vision is:
(a) astigmatism
(b) myopia
(c) presbyopia
(d) hypermetropia

Q17. After testing the eyes of a child, the optician has prescribed the following lens for his spectacles

Left eye: + 2.00 D Right eye: +2.25 D

The child is suffering from the defect of vision called:
(a) short-sightedness
(b) long-sightedness
(c) cataract
(d) presbyopia

Q18. A person got his eyes tested. The optician's prescription for the spectacles reads:

Left eye: –3.00 D Right eye: –3.50 D

The person is having a defect of vision called:
(a) presbyopia
(b) myopia
(c) astigmatism
(d) hypermetropia

Q19. A student sitting on the last bench in the class cannot read the writing on the blackboard clearly but he can read the book lying on his desk clearly. Which of the following statement is correct about the student?
(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 has come closer to him.

Q20. A man driving a car can read a distant road sign clearly but finds difficulty in reading the odometr on the dashboard 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 has come closer to him.

Q21. The defect of vision in which the eye-lens of a person gets progressively cloudy resulting in blurred vision is called:
(a) myopia
(b) presbyopia
(c) colourblindness
(d) cataract

Q22. A person cannot see distant objects clearly. His vision can be corrected by using the spectacles containing:
(a) concave lenss
(b) plane lenss
(c) contact lenss
(d) convex lenss

Q23. A person finds difficult in seeing nearby objects clearly. His vision can be corrected by using spectacles containing:
(a) converging lens
(b) diverging lens
(c) prismatic lens
(d) chromatic lens

Q24. The animal which does not have eyes that look sideways is:
(a) Horse (b) Chicken
(c) Lion (d) Fish

Q25. With both eyes open, a person's field of view is about:
(a) 90° (b) 150°
(c) 180° (d) 360°

Q26. Having two eyes gives a person:
(a) deeper field of view
(b) coloured field of view
(c) rear field of view
(d) wider field of view

Q27. The animals of prey have:
(a) two eyes at the front
(b) two eyes at the back

(c) two eyes on the sides

(d) one eye at the front one on the side

Q28. The animals called predators have

(a) both the eyes on the sides

(b) one eye on the side and one at the front

(c) one eye on the front and one at the back

(d) both eyes at the front

Q29. A beam of white light is shone onto a glass prism. The light cannot be

(a) deviated (b) dispersed

(c) focused (d) refracted

Q30. A beam of white light falls on a glass prism. The colour of light which undergoes the least bending on passing through the glass prism is:

(a) violet (b) red

(c) green (d) blue

Q31. The colour of white light which suffers the maximum bending (or maximum refraction) on passing through a glass prism is

(a) yellow

(b) orange

(c) red

(d) violet

Q32. Which of the following colour of white light is least deviated by prism?

(a) green (b) violet

(c) indigo (d) yellow

Q33. The colour of white light which is deviated the maximum on passing through the glass prism is:

(a) blue (b) indigo

(c) red (d) orange

Q34. The splitting up of white light into seven colours on passing through a glass prism is called:

(a) refraction (b) deflection

(c) dispersion (d) scattering

Q35. Which of the following coloured light has the least speed in glass prism?

(a) violet (b) yellow

(c) red (d) green

Q36. The coloured light having the maximum speed in glass prims is:

(a) blue (b) green

(c) violet (d) yellow

Q37. Which of the following colour of white light has the least wavelength?

(a) red (b) orange

(c) violet (d) blue

Q38. Out of the following, the colour of light having the maximum wavelength is:

(a) violet (b) indigo

(c) green (d) orange

Q39. The blue colour of sky is due to:

(a) refraction of light

(b) dispersion of light

(c) diffraction of light

(d) scattering of light

Q40. The red colour of the sun at the time of sunrise and sunset is because:

(a) red colour is least scattered

(b) blue colour is least scattered

(c) red colour is most scattered

(d) blue colour is most scattered

Q41. An isosceles glass prism having one angle 90° is called _____ prism.

(a) totally reflecting

(b) partially reflecting

(c) refracting prism

(d) totally diffracting

Q42. Formation of a rainbow does not depend on _____

(a) dispersion

(b) total internal reflection

(c) refraction

(d) interference

Q43. The angle between the two refracting faces is known as the angle of deviation

(a) True (b) False

Q44. Twinkling of stars, apparent sunrise and sunset can be explained by the phenomenon of _____

(a) atmospheric reflection

(b) atmospheric refraction

(c) atmospheric dispersion

(d) total internal reflection

Q45. The amount of light scattered, by air molecules increases with increase in wave length

(a) True (b) False

Q46. We can see the sun before the actual sunrise by about _____ minutes

(a) 5 (b) 3

(c) 2 (d) 1

Q47. Blue coloured light present in sunlight is scattered _____times more than the red light

(a) 2 (b) 5

(c) 10 (d) 7

Q48. The _____ component of sunlight is least scattered during sunrise and sunset

(a) red (b) blue

(c) green (d) violet

Q49. The colour of the light that is scattered most does not depend on the size of the scattering particles.

(a) True (b) False

Q50. Stars would appear to twinkle if we view them from moon

(a) True (b) False

Q51. The phenomenon of splitting of white light into its constituents colours, on passing through a prism is called _____

(a) diffraction (b) interference

(c) propagation (d) dispersion

Q52. A transparent medium bounded by two plane surfaces inclined at an angle is known as a _____

(a) lens (b) prism

(c) mirror (d) rectangular slab

Q53. The band of colours obtained by dispersion of light is called _____of light

(a) diffraction (b) spectrum

(c) propagation (d) interference

Q54. The frequency of _____ colour of light is maximum and _____ colour of light is minimum.

(a) violet, red (b) blue, red

(c) green, blue (d) red, violet

Q55. A ray of light bends more when it enters in to a medium. The refractive index of that medium is low.

(a) True (b) False

Q56. The angle 'δ' through which incident ray has been deviated by the prism is known as _____

(a) angle of prism (b) angle of deviation

(c) angle of dispersion

(d) angle of incidence

Q57. Which of the following is responsible for the formation of a rainbow?

(a) Interference, dispersion, reflection

(b) Refraction, reflection, dispersion

(c) Reflection, interference, dispersion

(d) Interference, refraction, dispersion

Q58. Clouds look white because, light of all wavelengths enter our eyes due to scattering

(a) True (b) False

Q59. The scattering of light by particles in its path is called _____

(a) astronomical scintillation

(b) dispersion of light

(c) tyndal effect

(d) atmospheric refraction

Q60. According to ray light the phenomenon of absorption of light and then re-radiating it by the molecules of atmosphere in different directions is called _____of light.

(a) dispersion (b) scattering

(c) diffraction (d) interference

ANSWERS

1. (d)	**2.** (c)	**3.** (c)	**4.** (c)	**5.** (d)
6. (c)	**7.** (c)	**8.** (c)	**9.** (c)	**10.** (a)
11. (d)	**12.** (b)	**13.** (c)	**14.** (c)	**15.** (a)
16. (d)	**17.** (b)	**18.** (b)	**19.** (d)	**20.** (a)
21. (d)	**22.** (a)	**23.** (a)	**24.** (c)	**25.** (c)
26. (d)	**27.** (c)	**28.** (d)	**29.** (c)	**30.** (b)
31. (d)	**32.** (d)	**33.** (b)	**34.** (c)	**35.** (d)
36. (d)	**37.** (c)	**38.** (d)	**39.** (d)	**40.** (d)
41. (a)	**42.** (d)	**43.** (b)	**44.** (b)	**45.** (b)
46. (c)	**47.** (c)	**48.** (a)	**49.** (a)	**50.** (b)
51. (d)	**52.** (b)	**53.** (b)	**54.** (a)	**55.** (b)
56. (b)	**57.** (b)	**58.** (a)	**59.** (c)	**60.** (b)