



INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF PHYSICS
CLASS X
HUMAN EYE AND THE COLOURFUL WORLD
WORKSHEET 2

SECTION A
CONCEPTUAL QUESTIONS

S.NO	QUESTIONS	MARKS
1	Imagine for a moment that the earth has no atmosphere. What would be the colour of sky in such case? Give reason for your answer.	(1)
2	Newton placed two triangular prisms in inverted position with respect to each other. He is then let white light pass through them. What was his observation on screen? Draw diagram of this experiment.	(2)
3	The power of a lens is +1.5D. Name the type of defect of vision that can be corrected using this lens. Draw a ray diagram to illustrate this defect of vision.	(3)
4	What is meant by least distance of distinct vision? Mention its value.	(2)
5	Explain how is the focal length of eye lens is changed by the ciliary muscles when object distance when object distance from it changes?	
6	Explain the formation of rainbow in the sky with the help of diagram. State the phenomena involved in proper sequence.	(3)
7	A person is unable to see the objects beyond 2m clearly. Name the defect of vision he is suffering from. State two causes due to which this defect may arise. Draw ray diagrams to show the defect of vision and correction of this defect using an appropriate lens.	(5)
8	Why is normal eye not able to see clearly the objects placed closer than 25cm?	(1)
9	What is atmospheric refraction? What is its cause?	(1)
10	How is the amount of light entering the eye controlled?	(1)
11	The time difference between actual sun set and the apparent sun set is 2 minutes. Explain this fact with the help of diagram	(2)
12	How does the size of particles affect the scattering of light?	(2)
13	Red lights are used as warning signals at road crossing. Why?	(2)
14	Name the following parts of human eye: (i) A thin membrane through which light enters (ii) The part of eye sensitive to light.	(2)
15	List the factors on which the angle of deviation through a prism depends.	(2)
16	Why do stars twinkle but not the planets?	(2)
17	"Stars seem higher than they actually are" – explain why?	(2)
18	Draw a neat diagram to show refraction of light ray through a prism. Mark angle of incidence, angle of emergence and angle of deviation.	(2)
19	Due to gradual weakening of ciliary muscles and diminishing flexibility of the eye lens a certain defect of vision arises. Write the name of the defect. Name the type of lens required such persons	(2)
20	Write the function of each of the following parts of the Human eye. i) Cornea ii) Iris iii) Crystalline lens iv) Ciliary muscles v) Retina	(5)
21	1) What is Tyndall effect?	(5)

	ii) Draw a figure which shows the arrangement for observing the phenomenon of scattering of light in laboratory? iii) What colours would you observe in the experiment? Why?	
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Section B

Numerical problems

22	A person with a myopic eye cannot see beyond 1.2m distinctly. What should be the power of corrective lens used to restore his proper vision?	(3)
23	The near point of Hypermetropic eye is 75cm from the eye. What is the power of the lens required to enable him to read clearly a book held at 25cm from the eye?	(3)
24	The near point of Hypermetropic eye is 100cm from the eye. What is the power of the lens which he requires to read clearly a book held at 25cm from the eye?	(3)
25	The far point of a person is 2m. Find the power and focal length of the lens required to rectify this problem.	(3)