KENDRIYA VIDYALAYA SANGATHAN AHEMDABAD REGION

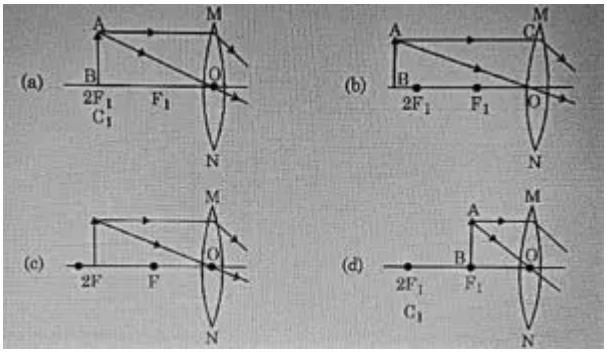
WORKSHEET- SCIENCE CLASS – X

CHAPTER – LIGHT:REFLECTION AND REFRACTION

Q1-MULTIPLE CHOICE QUESTIONS

(i) In which of the following is a concave mirror used ?
(a) A solar cooker
(b) A rear view mirror in the vehicles.
(c) A safety mirror in shopping malls
(d) In viewing full size image of distant tall buildings.

(ii) A student wants to obtain magnified image of an object AB as on a Screen. Which one of the following arrangements shows the correct position of AB for him/her to be successful?



(iii)Which of the following lenses would you prefer to use while reading small letters found in a dictionary
(a) A convex lens of focal length 50 cm.
(b) A concave lens of focal length 50 cm.
(c) A convex lens of focal length 5 cm.
(d) A concave lens of focal length 5 cm

(iv)The radius of curvature of a mirror is 20 cm the focal length is
(a)20cm
(b)10cm
©40cm
(d)5cm

(v) When light enters from air to glass, which of the following changes:
A .Wavelength
B. Velocity
C. Frequency
D. Amplitude
(a) A and D
(b) B and C

©A and C
(d)A,B and D

Q2- Give the answers briefly (VSA)

(i) Where is the image formed when an object is at large distance from a concave mirror ?
(ii) Magnification of a plane mirror is m=+1.What does m=1 and positive sign signify?
(iii) Define power of a lens.
(iv) State the two laws of reflection of light.

Q3- Give the answers of the following questions (short answer type)

(i) -Find the absolute refractive index of a medium in which light travels with a speed of $1.4x10^8$ m/s
- How do we distinguish a medium to be a rarer or denser ? Give two reasons.

(ii) Draw a ray diagram to show the formation of image of an object placed between the pole and Principal focus of a concave mirror. How will the nature and size of the image formed change ,if the mirror is replaced by converging lens of same focal length.

Q4- An object 4.0cm in size, is placed 25.0cm in front of a concave mirror of focal length 15.0cm.

(a) At what distance from the mirror should a screen be placed in order to obtain a screen in order to obtain a sharp image?
(b) Find the size of the image
(c) Draw a ray diagram to show the formation of image in this case.

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-MCQ Questions-

Q1-The unit of Power of lens is

(a) Metre (b) Centimetre (c) Diopter (d) m^{-1}

Q2- When a plane mirror is rotated through a certain angle, the reflected ray turns through twice as much and the size of the image:

(a) is doubled

(b) is halved

(c) becomes infinite

(d) remains the same

Q3) Which statement is true for the reflection of light?

(a) The angle of incidence and reflection are equal.

(b) The reflected light is less bright than the incident light.

(c) The sum of the angle of incidence and reflection is always greater than 90^0.

(d) The beams of the incident light, after reflection, diverge at unequal angles.

Q4) The focal length of a plane mirror is

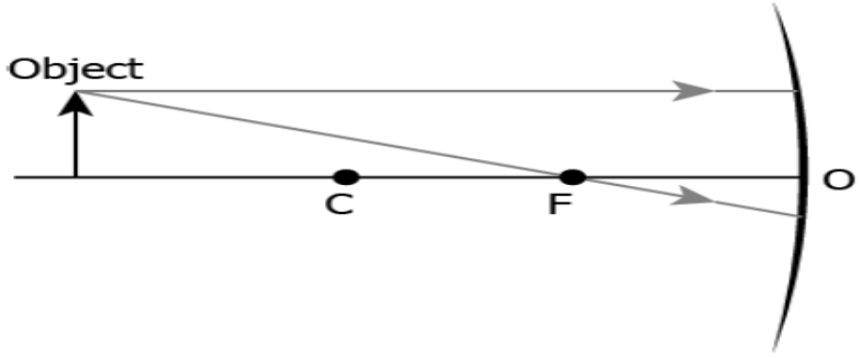
(a) 0

(b) infinite

(c) 25 cm

(d) -25 cm

Q5-The image shows the path of incident rays to a concave mirror.



Where would the reflected rays meet for the image formation to take place?

(a) Behind the mirror

(b) Between F and O

(c) Between C and F

(d) Beyond C

Q6) Rahul conducts an experiment using an object of height of 10 cm and a concave lens with a focal length of 20 cm. The object is placed at a distance of 25 cm from the lens. Can the image be formed on a screen?

(a) Yes, as the image formed will be real

(b) Yes, as the image formed will be erect

(c) No, as the image formed will be virtual

(d) No, as the image formed will be inverted

Q7)The image of an object placed in front of a convex mirror is formed at

(a) the object itself

(b) twice the distance of the object in front of the mirror

(c) half the distance of the object in front of the mirror

(d) behind the mirror

QII-Answer the questions briefly(VSA)

Q1. Draw a ray diagram to show the refraction of light through a glass prism. Mark on it

(a) the incident ray

(b) the emergent ray

(c) the angle of deviation.

Q2 What is meant by spectrum? How can we combine the components of white light after a prism has separated them?

Q3- 3 cm high object is placed at a distance of 80cm from a concave lens of focal length 20cm. Find the size of the image formed.

Q4-A concave mirror produces three times magnified (enlarged) real image of an object placed at 10cm in front of it .Where is the image located?

Q5- Find the focal length of a lens-2.0D.What type of lens is this?

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WORKSHEET- SCIENCE CLASS – X

CHAPTER – HUMAN EYE AND THE COLOURFUL WORLD

Q(I) MCQ QUESTIONS-

Q1-The least distance vision for a young adult with normal vision is about

(a)25m (b) 2.5cm (c) 25cm (d) 2.5m

Q2-The human eye forms an image of an object on its

(a) Cornea (b) iris (c) Pupil (d) Retina

Q3-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

Q4- The eye defect Hypermetropia can be corrected by using a

(a) Plano convex lens
(b) Double convex lens
(c) Plano concave lens
(d) Double concave lens

Q5-Assertion(A).The sky appears dark to people flying at high altitudes.

Reason(R).A rainbow is a natural spectrum which occurs after a shower.

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

QII-Very short Answer type Questions:

Q6-Why does the sun appear reddish at sunrise?

Q7- Write the function of iris in the human eye.

Q8- State one function of the crystalline lens in human eye.

QIII-Short Answer type question;

Q9-(a)What is Presbyopia? State the cause of presbyopia. How is presbyopia of a person corrected?

Q10-Explain why the planets do not twinkle?

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CHAPTER – HUMAN EYE AND THE COLOURFUL WORLD

Q(I) MCQ

Q1) A person went for a medical check-up and found that the curvature of his eye lens was increasing. Which defect is he likely to suffer from?

(a) Myopia

(b) Cataract

(c) Presbyopia

(d) Hypermetropia

Q2) When light rays enter the eye, most of the refraction occurs at the

(a) Crystalline lens

(b) The outer surface of the cornea

(c) Iris

(d) Pupil

Q3) In which part of the human eye is the image of an object formed?

(a) Iris

(b) Pupil

(c) Retina

(d) Cornea

Q4)Which of the following phenomena of light are involved in the formation of a rainbow?

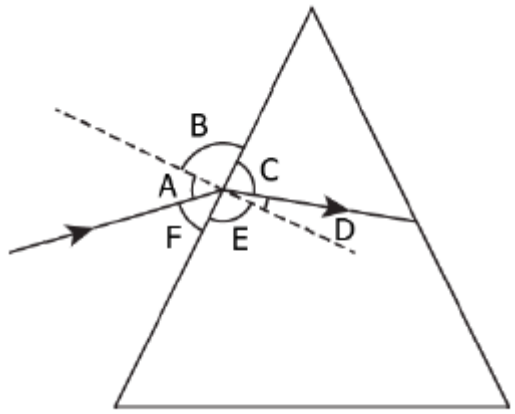
(a) Reflection, refraction and dispersion

(b) Refraction, dispersion and total internal reflection

(c) Refraction, dispersion and internal reflection

(d) Dispersion, scattering and total internal reflection

Q5)The image shows a light ray incident on a glass prism.



The various angles are labelled in the image. Which angle shows the angle of incidence and angle of refraction, respectively?

(a) A and D

(b) B and E

(c) C and F

(d) D and F

Q6) The deflection of light by minute particles and molecules of the atmosphere in all directions is called _____ of light.

(a) dispersion

(b) scattering

(c) interference

(d) Tyndall effect

Q7)When white light enters a glass prism from the air, the angle of deviation is least for

(a) blue light

(b) yellow light

(c) violet light

(d) red light

Q(II)-Very short answer questions-

Q8-The Tyndall effect is the scattering of light by …….

Q9 Which colour is refracted the most when white light is dispersed from a prism?

Q10- Why does the sun appear yellowish-white at noon?

Q11- What is the Tyndall effect?

Q12-What are Myopia and Hypermetropia?

Q(III) Long Answer questions

Q13-Explain the structure and function of the human eye with a neat labelled diagram.