CBSE Class 10 Science
Question Paper 2016
Abroad (Set-1)

*(i) The questions paper comprises **two section**, **A** and **B**. You are to attempt both the sections.*
*(ii) **All** questions are **compulsory**.*
(iii) There is no choice in any of the questions.
*(iv) **All** questions of **Section–A** and **all** questions of **Section–B** are to be attempted separately.*
*(v) Question numbers **1** to **3** in **Section–A** are **one** mark questions. These are to be answered in **one word** or **one sentence**.*
*(vi) Question numbers **4** to **6 Section–A** are **two** marks questions. These are to be answered in about **30 words** each.*
*(vii) Question numbers 7 to **18** in **Section–A** are **three** marks questions. There are to be answered in about **50 word**s each.*
*(viii) Question numbers **19** to **24** in **Section–A** are **five** marks questions. These are to be answered in about 70 **words** each.*
*(ix) Question numbers **25** to **33** in **Section–B** are multiple choice questions based on practical skills. Each question is a **one** mark question. You are to select one most appropriate response out of the four provided to you*
*(x) Question numbers **34** to **36** in **Section B** are **two** marks questions based on practical skills. These are to be answered in brief.*

Section A

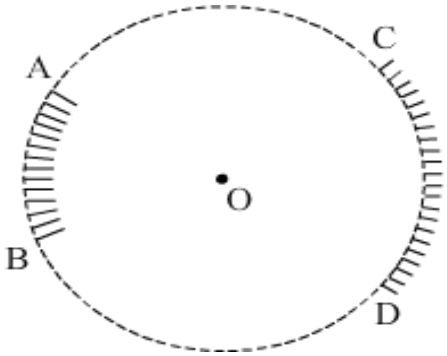
Q1 Which element exhibits the property of catenation to maximum extent and why?
Ans: Carbon exhibits the property of catenation to maximum extent because of strong C——C bond and its tetravalency.

Q2 Name the method by which hydra reproduces. Is this method sexual or asexual?
Ans: Hydra reproduces through budding. It is an asexual method of reproduction.

Q3 We often use the word environment. What does it mean?

Ans: Environment is the aggregate of biotic and abiotic factors that influence the growth and survival of an organism.

Q4 AB and CD, two spherical mirrors, from parts of a hollow spherical ball with its centre at O as shown in the diagram. If arc AB = 1212 arc CD, what is the ratio of their focal lengths? State which of the two mirrors will always form virtual image of an object placed in front of it and why.



Ans: The ratio of the focal lengths of mirrors AB and CD will be equal to one as both the mirrors are part of same spherical ball. Hence, their radius of curvature and focal length will be same.
The mirror AB will always form a virtual image when object is placed infront of it because mirror AB is a conex mirror.

Q5 What is sustainable development? State its two main objectives.
Ans: Sustainable development is a kind of development where present generation meets its needs without compromising the needs of the future generations.
Two main objectives of sustainable development are:
1. Judicious use of resources
2. Planned development

Q6 List four causes of damage to forests.
Ans: Four main causes of damage to forests are:
1. grazing animals
2. exploitation of forest resources by industries
3. development of infrastructure projects such as dams and roads
4. damage caused by tourists and arrangements made for their convenience

Q7 Write the name and molecular formula of an organic compound having its name suffixed with 'ol' and having two carbon atoms in its molecule. Write balanced chemical equation to indicate what happens when this compound is heated with excess conc. H_2SO_4 and the name of main product formed. Also state the role of conc. H_2SO_4 in the reaction.

Ans: Name of the organic compound: Ethanol

Molecular formula: CH_3CH_2OH

When ethanol is heated with excess concentrated sulphuric acid, it loses one water molecule and gives unsaturated hydrocarbon as a product. The balanced chemical equation indicating the reaction is given following.

$$\underset{Ethanol}{CH_3CH_2OH} \xrightarrow[CONC\ H_2SO_4]{\Delta} \underset{Ethene}{CH_2=CH_2} + \underset{Water}{H_2O}$$

Name of main product: Ethene

Role of conc. H_2SO_4 in the reaction : As a dehydrating agent that removes water molecule from ethanol.

Q8 An organic compound 'P' is a constituent of wine. 'P' on reacting with acidified $K_2Cr_2O_7$ forms another compound 'Q'. When a piece of sodium is added to 'Q' a gas 'R' evolves which burns with a pop sound. Identify P, Q and R and write the chemical equations of the reactions involved.

Ans: The organic compound 'P' is ethanol.

$$\underset{Ethanol}{CH_3CH_2OH} \xrightarrow{Acidified\ K_2Cr_2O_7} \underset{Ethanoic\ acid\ (Q)}{CH_3COOH}$$

$$\underset{(Q)}{CH_3COOH} + Na \rightarrow CH_3COONa + \underset{(R)}{H_2}$$

H_2 burns with pop sound.

Hence, P, Q and R are ethanol, ethanoic acid and hydrogen gas, respectively.

Q9 State the main aim of classifying elements. Which is the more fundamental property of elements that is used in the development of Modern Periodic Table? Name and state the law based on this fundamental property. On which side of the periodic table one

can find metals, non-metals and metalloids?

Ans: Systemetic study of all elements is the main aim of classification of elements. The atomic number of an element is the more fundamental property of elements that is used in the development of Modern Periodic Table. The Modern Periodic Law was given based on this fundamental property. This law can be stated as follows:

'Properties of elements are a periodic function of their atomic number.'

Positions of metals, non-metals and semi-metals in the Periodic Table are given following.

- The metals are found towards the left-hand side of the Periodic Table.
- The non-metals are found on the right-hand side of the Periodic Table.
- The semi-metal or metalloid are found in the middle of the periodic table along a zig-zag line that separates metals from non-metals.

Q10 An element 'X' (Atomic number – 20) burns in the presence of oxygen to form a basic oxide.

(a) Identify the element and write its electronic configuration.

(b) State its group number and period number in the Modern Periodic Table.

(c) Write a balanced chemical equation for the reaction when this oxide is dissolved in water.

Ans: (a) The element 'X' is calcium (symbol Ca). Its electronic configuration is 2, 8, 8, 2.

(b) Group number and periodic number of Ca in the Modern Periodic Table are 2 and 4, respectively.

(c) Balanced chemical equation for the reaction when oxide of Ca is dissolved in water is given following as:

$$2\,Ca + O_2 \rightarrow \underset{Calcium\,oxide}{2\,CaO}$$

$$\underset{Calcium\,oxide}{CaO} + \underset{water}{H_2O} \rightarrow \underset{Calcium\,hydroxide}{Ca(OH)_2}$$

Q11 What is pollination? List its two types and write a distinguishing feature between the two.

Ans: Transfer of pollen grains from anther to stigma is known as pollination. It is of two types
(1) Self pollination
(2) Cross pollination
Self pollination is the transfer of pollen grains from anther to stigma of the same flower or different flower of the same plant while cross pollination is the transfer of pollen grains from anther to stigma of flowers of different plants.

Q12 What happens when
(a) Planaria gets cut into two pieces?
(b) A mature spirogyra filament attains considerable length?
(c) On maturation sporangia burst?
Ans: (a) When *Planaria* gets cut into two pieces, each piece regenerates and grows into separate *Planaria* .
(b) When a filament of mature *Spirogyra* attains considerable length, it breaks into several fragments which grow into new individuals.
(c) When sporangia burst, they release spores. Under favourable conditions, these spores germinate to form new individuals.

Q13 What is sexual reproduction? List its four significances.
Ans: The type of reproduction which involve two individuals of different sexes (male and female) is known as sexual reproduction.
Significance of sexual reproduction:
(1) It is a source of genetic variation among a population of organisms.
(2) It gives rise to individuals more adapted to the environment.
(3) It helps in survival of species.
(4) It helps in evolution of organisms.

Q14 List two differences in tabular form between dominant trait and recessive traits. What percentage/proportion of the plants in the F_2 generation/progeny were round, in Mendel's cross between round and wrinkled pea plants?
Ans: Difference between dominant trait and recessive gene/trait

Dominant Trait	Recessive Trait
It is a trait or characteristic, which is able to express itself over another contrasting trait.	It is a trait which is unable to express its effect in the presence of the dominant trait.
It can express in both heterozygous and homozygous conditions.	It can express only in homozygous condition.

Cross between round (RR) and wrinkled (rr) pea plants

Parents RR x rr

Gametes R r

F_1 progeny Rr (round seed)

Selfing in F_2 generation

	R	**r**
R	RR	Rr
r	Rr	rr

Result: In F_2 generation, the progeny will be

75% round (RR, Rr)

25% wrinkled (rr)

Q15 List three factors that provide evidences in favour of evolution in organisms and state the role of each in brief.

Ans: Homologous organs: The homologous organs are similar in form (or are embryologically similar), but perform different functions in different organisms. The bone structure observed in wings of birds, flippers of dolphins and arms of human beings is similar, but they perform different functions. They belong to the same group of animals, the vertebrates, and therefore, exhibit **homology** .

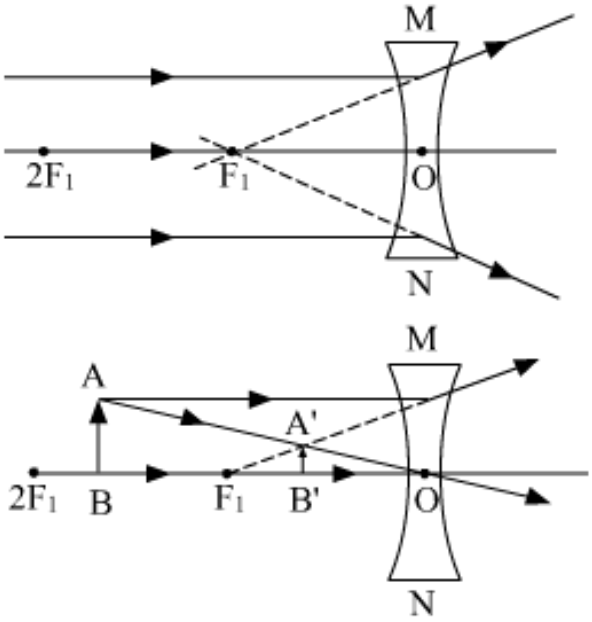
Analogous organs: The organs that perform similar functions in different organisms of different origins are analogous. For example, wings of birds and wings of bats (bird wings are made of feathers, while bat wings are folds of skin) exhibit analogy. Both are used for flight, but they are structurally different. Also, they are found in organisms which are not related.

Fossils: Fossils are the remains of organisms that once existed on Earth. They represent the ancestors of plants and animals, which are alive even today.

Vestigial organs: Organs that are present in a reduced form and do not play any role in the normal body functions are known as vestigial organs. These organs are remnants of the organs that were once complete and functional in the ancestors, but disappeared gradually either because of a change in the mode of life or because they became non-functional.

Q16 If the image formed by a lens for all positions of the object placed in front of it is always virtual, erect and diminishd, state the type of the lens. Draw a ray diagram in support of your answer. If the numerical value of focal length of such a lens is 20 cm, find its power in new cartesian sign conventions.

Ans: A concave lens will always give a virtual, erect and diminished image, irrespective of the position of the object.



Given, Focal length f = −20 cm = − 0.2 m (negative for convex lens)

$$P = \frac{1}{f\,(metres)} = \frac{1}{-0.2m} = -5\,D$$

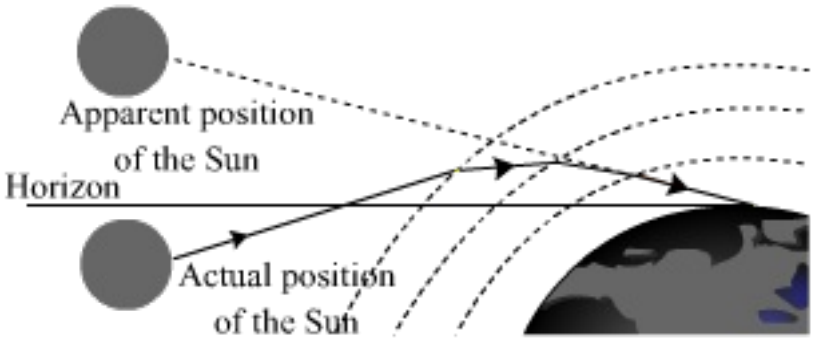
Q17 Explain in brief the reason for each of the following:

(a) Advanced sunrise

Ans: <u>Advanced sunrise</u>

Sun is seen about two minutes before the actual sunrise because of refraction of sunlight

through the atmosphere. When the Sun is just below the horizon, sunlight enters the Earth's atmosphere obliquely and gets refracted through the different layers of the atmosphere. As a result of this, sunlight gets bent and reaches the eyes of an observer. Following the path of light rays entering the eyes, the observer sees the Sun slightly above its actual position. As a result of this, Sun is seen about two minutes before the actual sunrise.



(b) Delayed sunset

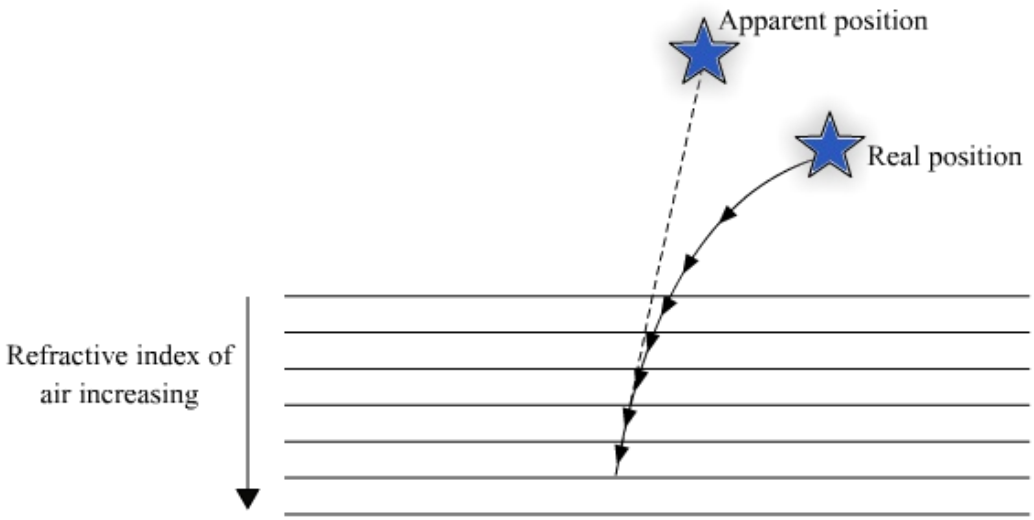
Ans: <u>Delayed sunset</u>

Similary, Sun is seen about two minutes after the actual sunset because of the refraction of sunlight through the atmosphere. Again when Sun is just below the horizon, sunlight enters the Earth's atmosphere obliquely and gets refracted through the different layers of the atmosphere. As a result, sunlight gets bent and reaches the eyes of the observer. Following the path of light rays entering the eyes, the observer sees the Sun again slightly above its actual position. As a result of this, Sun is seen for two minutes even after the actual sunset.

(c) Twinkling of stars

Ans: <u>Twinkling of stars</u>

Light coming from the stars undergoes refraction on entering the Earth’s atmosphere. This refraction continues until it reaches the Earth’s surface. This happens because of temperature variation of atmospheric air. Hence, the atmospheric air has changing refractive index at various altitudes. In this case, light from the stars continuously travels from a rarer medium to a denser medium. Hence, it continuously bends towards the normal. The refractive index of air medium gradually increases with a decrease in altitude. The continuous bending of starlight towards the normal results in a slight rise in the apparent position of the star.



Since the physical conditions of the Earth's atmosphere keeps changing, the apparent position of the star is not stationary. The star changes its position continuously, which makes it twinkle. This happens because light from the stars travel a very large distance before reaching the observer. However, the path varies continuously because of uneven atmospheric conditions. Hence, the stars seem to be fluctuating, sometimes appearing bright and sometimes dull. All this, together, causes the twinkling of stars.

Q18 While discussing about coal and petroleum a teacher told his students about PCRA's (Petroleum Conservation Research Association) guidelines to save the fossil fuels while driving vehicles. Deepa was going to her school with her mother who was driving car. At the traffic signal, when the light was red, Deepa suggested her mother to switch of the engine.

After reading the above passage, answer the following questions :

(a) Fossil fuels are natural resources; then why do we need to conserve them?

Ans: Fossil fluels are limited natural resources. It is estimated that if we continue to consume fossil fuels at the current rate, then all the petroleum reserves will get exhausted in the next 40 years. Therefore, it is very important that adequate measures are taken to conserve these valuable natural resources.

(b) List any two ways of saving the fossil fuels.

Ans: i) Taking a bus, using your personal vehicle or walking/cycling.

ii) Switch of your vehicle on traffic signal.

(c) State two values exhibited to Deepa.

Ans: i) conservation of natural fuel
ii) prevention of air pollution

Q19 (a) You have three unlabelled test tubes containing ethanol, ethanoic acid and soap solution. Explain the method you would use to identify the compounds in different test tubes by chemical tests using litmus paper and sodium metal.
Ans: (a) Distinction between ethanol, ethanoic acid and soap solution

- Blue litmus paper turns red when it comes in contact with acid. So, ethanoic acid will turn the blue litmus paper red.
- Red litmus paper turns blue when it comes in contact with base. So, the soap solution will turn the red litmus paper blue.
- When ethanol is reacted with sodium metal, it gives hydrogen gas bubble that burns with pop sound.

(b) Give the reason of formation of scum when soaps are used with hard water.
Ans: When soaps are used with hard water, they form scum. This is caused by the reaction of soap with the calcium and magnesium salts, which cause the hardness of water.

Q20 What is vegetative propagation? List with brief explanation three advantages of practising this process for growing some types of plants. Select two plants from the following which are grown by this process:
Banana, Wheat, Mustard, Jasmine, Gram.
Ans: Vegetative reproduction is the plant's ability to reproduce by producing new plants from vegetative plant parts such as roots, stem, and leaves.

<u>Advantages of vegetative reproduction</u>

- The plants (like banana, seedless grapes, rose, etc) that cannot produce viable seeds can be propagated with the help of vegetative propagation.
- Vegetative propagation is helpful in obtaining genetically identical copies of a plant in order to preserve the selected varieties.
- It is a rapid, easier and less expensive method of reproduction.
- Vegetative propagation is suitable for the plants with small number of seeds or higher periods of seed dormancy.

Among the given plants, Banana and Jasmine can be grown by vegetative propagation.

Q21 (a) Why did Mendel choose garden pea for his experiments? Write two reasons.
(b) List two contrasting visible characters of garden pea Mendel used for his experiment.
(c) Explain in brief how Mendel interpreted his results to show that the traits may be dominant or recessive.
Ans: (a) Mendel chose garden pea for his experiment because pea plants was self fertilising and have short life cycle.
(b) Mendel performed experiments on a garden pea (*Pisum sativum*) with different visible contrasting characters. He selected seven contrasting pairs of characters such as tall/short plants, purple/white flower colour etc.
(c) Mendel performed his experiment on tall and dwarf plant and interpreted his results to show that the traits may be dominant or recessive.
Parent plants: True breeding tall pea plant was crossed with true breeding dwarf pea plant.
Production of F_1 plants: All F_1 plants were found to be tall.
Results of self-pollination of F_1 plants or F_2 plants: Mendel found that on self-pollination of F_1 plants, the progenies obtained in F_2 generations were not all tall plants. Instead, one-fourth of F_2 plants were found to be dwarf.
Mendel's explanation for the reappearance of the short trait:
From this experiment, Mendel concluded that the F_1 tall plants were not true breeding. They were carrying both the traits. They appeared tall, because the tall trait was dominant over the dwarf trait.

Q22 Suppose you have three concave mirrors A, B and C of focal lengths 10 cm, 15 cm and 20 cm. For each concave mirror you perform the experiment of image formation for three values of object distance of 10 cm, 20 cm and 30 cm. Giving reason answer the following:
(a) For the three object distances, identify the mirror/mirrors which will form an image of magnification – 1.
Ans: In case of concave mirror, a real and inverted image of same size is formed as that of object, when object is placed at a distance of 2*F* (*R*). Hence, in case of mirror A when object is

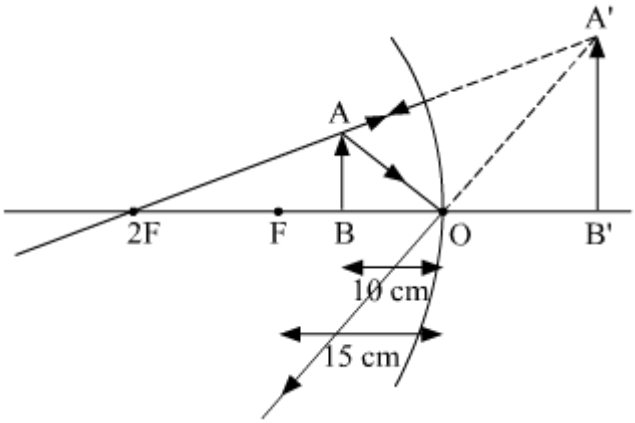
placed at 20 cm , and in case of mirror B, when object is placed at 30 cm, the image formed will be of same size as that of object. Thus, magnification in both these cases will be −1.

(b) Out of the three mirrors identify the mirror which would be preferred to be used for shaving purposes/makeup.

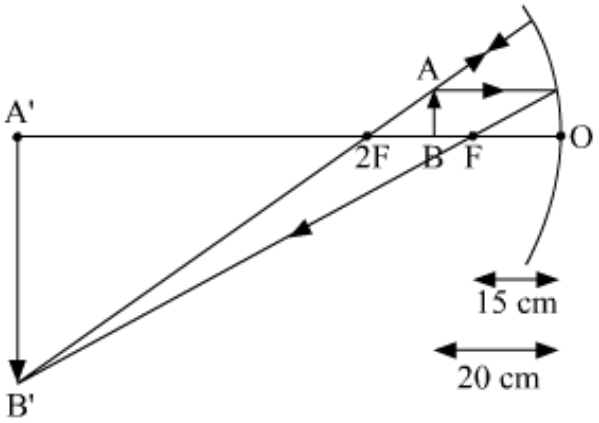
Ans: The mirror C, with focal length of 20 cm will be preferred to be used for shaving purposes/makeup. As within this focal length, enlarged and erect image will be formed.

(c) For the mirror B draw ray diagram for image formation for object distances 10 cm and 20 cm.

Ans: (i) When the object is at 10 cm from the mirror



(ii) When the object is at 20 cm from the mirror



Q23 At what distance from a concave lens of focal length 20 cm a 6 cm tall object be placed so as to obtain its image at 15 cm from the lens? Also calculate the size of the image formed.

Draw a ray diagram to justify your answer for the above situation and label it.

Ans: Given,

$f = -20\,cm$

$h_o = 6\,cm$

$h_i = ?$

$v = -15\,cm$

$u = ?$

We know,

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

$$\Rightarrow \frac{1}{u} = \frac{1}{v} - \frac{1}{f}$$

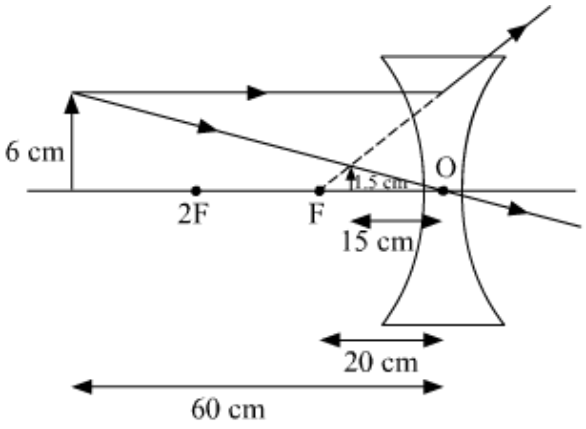
$$\Rightarrow \frac{1}{u} = \frac{1}{-15} - \frac{1}{-20} = -\frac{1}{60}$$

$$\Rightarrow u = -60\,cm$$

Also. magnification, *m* can be calculated as:

$$vu = hih0 \Rightarrow h_i = \frac{v}{u} \times h_0$$

$$\Rightarrow h_i = \frac{-15}{-60} \times 6 = 1.5\,cm$$

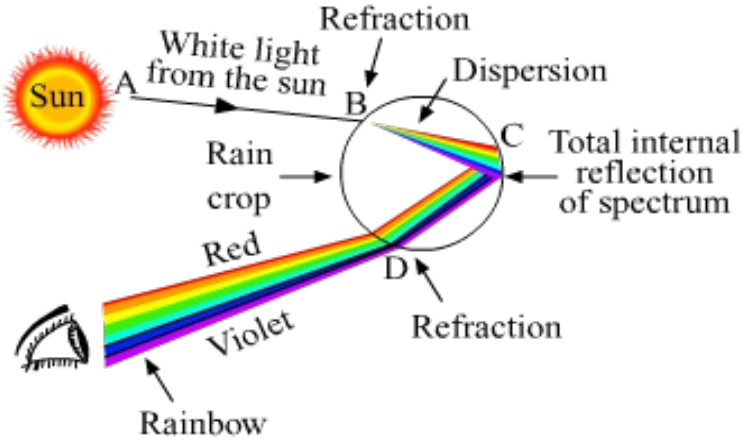


Q24 (a) What is dispersion of white light? State its cause.

(b) "Rainbow is an example of dispersion of sunlight." Justify this statement by explaining, with the help of a labelled diagram, the formation of a rainbow in the sky. List two essential conditions for observing a rainbow.

Ans: (a) The splitting of a beam of white light into its seven constituent colours, when it passes through a glass prism, is called the dispersion of light.
When a beam of white light enters a prism, it gets refracted and splits into its seven constituent colours, viz. violet, indigo, blue, green, yellow, orange, and red. This splitting of the light ray ocurs because of the different angles of bending for each colour. Hence, each colour while passing through the prism bends at different angles with respect to the incident beam. This gives rise to the formation of the colour spectrum.

(b) The formation of rainbow is an example of dispersion of light this is because the raindrops in the air after a rainfall act as small prisms, causing the separation of sunlight into its spectrum when allowed to pass through it. Different colours bend at different angles when they enter the water to air and hence get separated. If the angle of incidence is greater than the critical angle, total internal reflection will occur. A rainbow will only be seen if this happens, otherwise the light will continue out the other side of the raindrop and continue to move away from the would be viewer.



To observe a rainbow :
1. a rain shower must have occured so that there are enough water droplets or moisture in the air.
2. the Sun should be in the opposite direction i.e. we should stand with our back towards the sun to observe the rainbow.

SECTION B

Q25 Consider the following oils:
(I) Mobil oil
(II) Castor oil

(III) Turpentine oil

(IV) Kerosene

(V) Mustard oil

(VI) Coconut oil

Which of these can be used for prepartion of soap?

(a) I, II, III, VI

(b) II, V, VI

(c) II, III, V, VI

(d) II, III, VI

Ans: Castor oil, turpentine oil, mustard oil and coconut oil can be used for the preparation of soap.

Hence, the correct answer is option C.

Q26 The chemical mostly used in the preparation of most of the soaps we use is

(a) Sodium chloride

(b) Potassium hydroxide

(c) Sodium hydroxide

(a) Potassium chloride

Ans: Sodium hydroxide

Hence, the correct answer is option (c).

Q27 A student is testing water to know which is best for cleansing purposes with soaps. He would find that the cleansing action of soaps is best when he uses water obtained from

(a) rain

(b) tap

(c) hand pump

(d) pond

Ans: Rain does not conatin any such salts that cause hadeness of water. So, among the given sources of water, rain would show best cleansing action of soaps.

Hence, the correct answer is option (a).

Q28 A student determines the focal length of a device 'X' by focusing the image of a

distant object on a screen placed 20 cm from the device on the same side as the object. The device 'X' is

(a) Concave lens of focal length 10 cm

(b) Convex lens of focal length 20 cm

(c) Concave mirror of focal length 10 cm

(d) Concave mirror of focal length 20 cm

Ans: In case of concave mirror, the image will be formed on the same side on the screen at its focus point when object is distant.

Hence, the correct answer is option (d).

Q29 A teacher sets up the stand carrying a convex lens of focal length 15 cm at 42.7 cm mark on the optical bench. He asks four students A, B, C and D to suggest the position of screen on the optical bench so that a distinct image of a distant tree is obtained almost immediately on it. The positions suggested by the students were as

A. 12.7 cm

B. 29.7 cm

C. 57.7 cm

D. 72.7 cm

The correct position of the screen was suggested by

(a) A

(b) B

(c) C

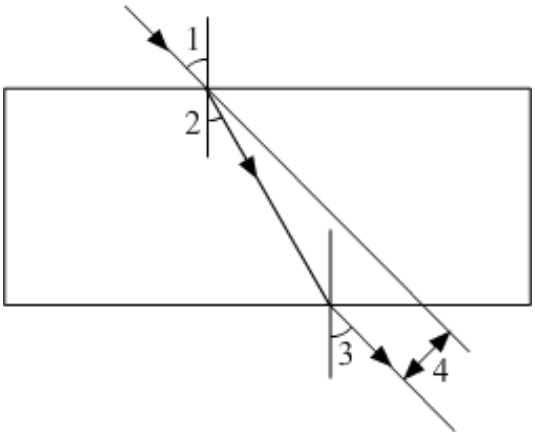
(d) D

Ans: Here, the object is considered at infinity. Thus, the image will be formed 15 cm away from the lens at its focus. Thus, the screen should be placed at 42.7 + 15 = 57.7 cm mark on the optical bench.

The correct position of the screen was suggested by C.

Hence, the correct answer is option (c).

Q30 A student has traced the path of a ray of light through a glass slab as follows. If you are asked to label 1, 2, 3 and 4, the correct sequencing of labeling $\angle i, \angle e, \angle r$ and lateral displacement respectively is



(a) 2, 1, 3, 4

(b) 1, 2, 3, 4

(c) 1, 3, 2, 4

(d) 1, 3, 4, 2

Ans: The correct sequence of labeling $\angle i$, $\angle e$, $\angle r$ and lateral displacement respectively is 1, 3, 2 and 4.

Hence, the correct answer is option (c).

Q31 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: 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 gets deviated and bends towards the thicker part (base) of the prism.

Hence, the correct answer is option (d).

Q32 The students of a class were asked by the teacher to study the different parts of an embryo of an angiosprm. Given below are the essential steps for the experiment :

A. Soak the seeds in plain water and keep them overnight.

B. Cut open the soaked seed and observe its different parts.

C. Take some healthy seeds in a petri-dish.

D. Drain the excess water, cover the seeds with a wet cotton cloth and leave them as it

is for a day.

The correct sequence of these steps is

(a) C, A, D, B

(b) C, D, A, B

(c) A, C, D, B

(d) A, C, B, D

Ans: The correct sequence for this experiment should be

C→A→ D → B

Hence, the correct answer is option (a).

Q33 A basket of vegetables contains Carrot, Potato, Sweet potato, Radish, Tomato and Brinjal. Which of them represet the homologous structures?

(a) Carrot, sweet potato and potato

(b) Radish and carrot

(c) Carrot, potato and tomato

(d) Brinjal and radish

Ans: Among the given sets of vegetables, carrot and radish are homologous structures. Homologous structures are those structures that have the same origin but can perform same or different functions in different organisms. Both carrot and radish are modifications of the root for food storage.

Hence, the correct answer is option (b).

Q34 A student is studying the properties of acetic acid in his school laboratory. List two physical and two chemical properties which he must observe and note in his record book.

Ans: Physical properties of acetic acid

- It is colourless liquid at room temperature with unpleasant odour.
- It is miscible in water due to the formation of hydrogen bonds with water.

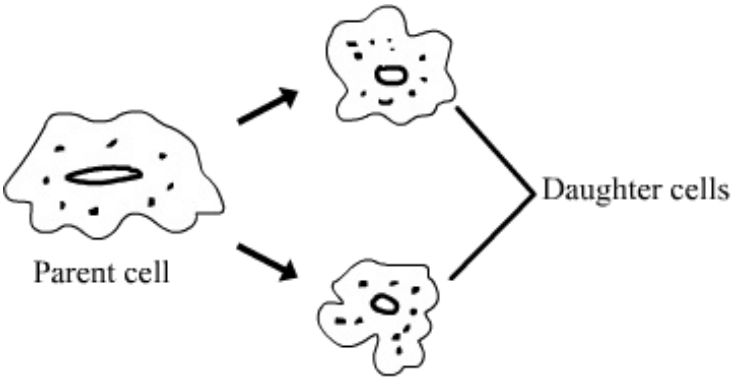
Chemical properties of acetic acid

- It reacts with absolute ethanol in the presence of an acid catalyst to give an ester, a sweet-smelling substances.

- It reacts with carbonates and hydrogencarbonates to give rise to a salt, carbon dioxide and water.

Q35 In which asexual reproduction two individuals are formed from a single parent and the parental identity is lost? Draw the initial and the final stages of this type of reproduction to justify your answer. Write the event which this process starts.

Ans: In binary fission, the parent cell looses its identity as it gives rise to two daughter cells. Binary fission is a type of asexual reproduction found in protozoans such as *Amoeba*.



Q36 To find the image distance for varying object distances in case of a convex lens of focal length 15 cm, a student obtains on a screen a sharp image of a bright object by placing it at 20 cm distance from the lens. After that he gradually moves the object away from the lens and each time focuses the image on the screen.

(a) In which direction-towards or away from the lens does he move the screen to focus the object?

(b) How does the size of image change?

(c) Approximately at what distance does he obtain the image of magnification –1?

(d) How does the intensity of image change as the object moves farther and farther away from the lens?

Ans: (a) As the student moves the object away from the lens, the position of the image shifts towards the lens. To focus the object, he should move the screen towards the lens.

(b) The size of the image will decreases when the object is moved away from the lens.

(c) When object will be placed 30 cm away from the lens, the magnification will be –1.

(d) The intensity of the image will decrease as the object moves farther and farther away from the lens because the number or rays falling on the lens from the object will reduce by increasing distance between the lens and the object.