CBSE
Class X Science
Sample Paper 14

Time: 3 hrs   **Total Marks: 80**

General Instructions:

(i) The question paper comprises four sections A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.

(ii) Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each.

(iii) These questions contain multiple choice questions (MCQs), very short answer questions and assertion - reason type questions. Answers to these should be given in one word or one sentence.

(iv) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each. Answers to these questions should in the range of 30 to 50 words.

(v) Section–C - question no. 27 to 33 are short answer type questions, carrying 3 marks each. Answers to these questions should in the range of 50 to 80 words.

(vi) Section–D – question no. - 34 to 36 are long answer type questions carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.

(vii) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

(viii) Wherever necessary, neat and properly labelled diagrams should be drawn.

Section A

1. Define power of lens. (1)

OR

Which type of reflection of light leads to the formation of images?

2. What is the commercial unit of energy? (1)

3. The incident ray makes an angle of 30^0 with a plane mirror. What is the total angle between the incident ray and the reflected ray? (1)
   a) 60^0
   b) 30^0
   c) 120^0
   d) 80^0

4. What processes would you consider essential for maintaining life? (1)

5. How much percentage of solar radiation is absorbed by the green plants during photosynthesis? (1)

6. Why is DNA copying an essential part of the process of reproduction? (1)

OR

What will happen in the absence of anther?

7. Why plastic is not degraded by bacteria? (1)

8. What is dialysis? (1)

9. What criteria do we use to decide whether something is alive? (1)

OR

Where do plants get each of the raw materials required for photosynthesis?

10. Why is diamond used for making cutting tools but graphite is not? (1)
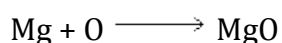
11. Define pH. (1)

OR

A is a soluble acidic oxide; B is a soluble base. Compared to the pH of pure water, what is the pH of (a) a solution of A (b) a solution of B.

12. What happens chemically when quicklime is added to water filled in a bucket? (1)

OR

What is wrong with the following chemical equation?

$$Mg + O \longrightarrow MgO$$

Correct and balance it.

13. Name 2 elements in each case (1)
(i) Alkali metals
(ii) Alkaline earth metals

For question numbers 14, 15 and 16, two statements are given—one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.
a) Both A and R are true, and R is the correct explanation of the assertion.
b) Both A and R are true, but R is not the correct explanation of the assertion.
c) A is true, but R is false.
d) A is false, but R is true.

14. Assertion: The image formed by a concave mirror is certainly real if the object is virtual.
Reason: The image formed by a concave mirror is certainly virtual if the object is real.(1)

15. Assertion: Metals are electropositive elements.
Reason: Non-metals can form negative ions by gaining electrons. (1)

OR

Assertion: Silver gets deposited on the copper plate
Reason: Copper is more reactive than silver and hence displaces silver from silver nitrate solution.

16. Assertion: Aluminium metal does not react with water under ordinary conditions.
Reason: There is presence of a thin layer of aluminium oxide on its surface. (1)

17. Read the following and answer any **four** questions from 17 (i) to 17 (v) (1×4)
An element E exists in three allotropic forms A, B and C. In allotrope A, the atoms of element E are joined to form spherical molecules. In allotrope B, each atom of the element E is surrounded by three other E atoms to form a sheet like structure. In allotrope C, each atom of the element E is surrounded by four other E atoms to form a rigid structure.
(i)   Name the element E.
    (a) Carbon
    (b) Hydrogen
    (c) Oxygen
    (d) hydrocarbon
(ii) What is the allotrope A?
    (a) Buckminsterfullerene
    (b) Graphite
    (c) Diamond
    (d) Coke
(iii) What is the allotrope B?
    (a) Buckminsterfullerene
    (b) Graphite
    (c) Diamond
    (d) Coke
(iv) What is the allotrope C?
    (a) Buckminsterfullerene
    (b) Graphite
    (c) Diamond
    (d) Coke
(v)   Which allotrope is used in making jewellery?
    (a) A
    (b) B
    (c) C
    (d) None of these

18. Read the following and answer any **four** questions from 18 (i) to 18 (v)   (1×4)

The table shows the current in three electrical appliances when connected to a 240 V main supply.

Electrical appliance	Current drawn
Lamp	0.5 A
Electric toaster	4 A
Electric kettle	9 A
Electric iron	8 A

(i)   Identify the electrical appliance having the highest electrical resistance.
   a) Electric lamp
   b) Electric toaster
   c) Electric kettle
   d) Electric iron

(ii) Calculate the power rating of the kettle when connected to a 240 V main supply.
   a) 2000 W
   b) 2160 W
   c) 3010 W
   d) 200 W

(iii) How much current would be drawn by an electric toaster when it is connected to a 120 V supply?
   a) 4 A
   b) 1 A
   c) 10 A
   d) 2 A

(iv) Calculate the power rating of the lamp when it is connected to a 240 V main supply.
   a) 300 W
   b) 120 W
   c) 200 W
   d) 240 W

(v)   92 Watt = _____J/s
   a) 920
   b) 9.2
   c) 0.92
   d) 92

19. Read the following and answer any **four** questions from 19 (i) to 19 (v)   (1×4)

Blood vessels are the channels or conduits through which blood is distributed to body tissues. The vessels make up two closed systems of tubes that begin and end at the heart.   One system,   the pulmonary vessels,   transports   blood   from   the right ventricle to the lungs and back to the left atrium. The other system, the systemic

vessels, carries blood from the left ventricle to the tissues in all parts of the body and then returns the blood to the right atrium.

i) Which system carries blood from the right ventricle to the lungs?
   a) Pulmonary
   b) Systemic
   c) Hepatic
   d) Gastric

ii) Systemic vessels carry blood from
   a) Right ventricle to lungs
   b) Left ventricle to body tissues
   c) Body tissues to left ventricle
   d) Lungs to right ventricle

iii) Which blood vessels carry blood away from the heart?
   a) Veins
   b) Capillaries
   c) Arteries
   d) Venules

iv) The exchange of materials between the blood and tissue cells is done by
   a) Capillaries
   b) Veins
   c) Venules
   d) Arteries

v) Which blood vessels carry blood towards the heart?
   a) Veins
   b) Capillaries
   c) Arteries
   d) Venules

20. Read the following and answer any **four** questions from 20 (i) to 20 (v)   (1×4)

The food material taken in during the process of nutrition is used in cells to provide energy for various life processes. Diverse organisms do this in different ways – some use oxygen to breakdown glucose completely into carbon dioxide and water, some use other pathways that do not involve oxygen.

i) Which three carbon molecule is formed during the breakdown of glucose?
   a) Lactic acid
   b) Glyceraldehyde
   c) Acetic acid
   d) Pyruvate

ii) The process in which pyruvate may be converted into ethanol and carbon dioxide is
   a) Germination
   b) Fermentation
   c) Cellular respiration

d) Oxidation

iii) Breakdown of pyruvate using oxygen takes place in the
   a) Cytoplasm
   b) Stroma
   c) Mitochondria
   d) Cellular matrix

iv) The breakdown of pyruvate in the absence of oxygen producing lactic acid occurs primarily in the
   a) Muscle cells
   b) Brain cells
   c) Cardiac cells
   d) Nerve cells

v) Observe the graph and interpret which of the following is true w.r.t. rate of respiration?
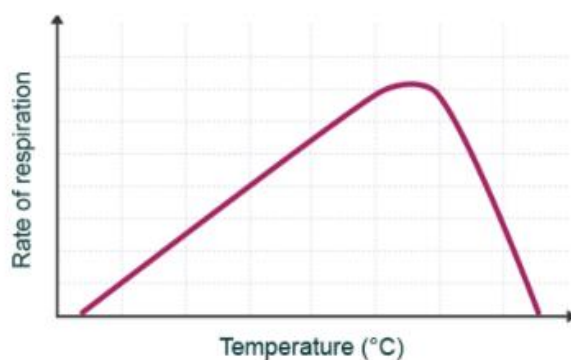
   a) Increases with an increase in temperature
   b) Increases first and then decreases with an increase in temperature
   c) Decreases with an increase in temperature
   d) Decreases first and then increases with an increase in temperature

Section B

21. A solution has a pH of 7. Explain, how you would: (2)
    (i) Increase its pH
    (ii) Decrease its pH
    If a solution changes the color of litmus from red to blue, what can you say about its pH?

OR

    Two solutions A and B have pH values of 2 and 9 respectively which one of these two will give a pink colour with phenolphthalein indicator? Why?

22. How does electronic configuration in atoms change   (2)
    (i) In a period from left to right?
    (ii) In a group top to bottom?

23. Which type of mirror has:
(a) Positive focal length?
(b) Negative focal length? (2)

OR

Between which two points of concave mirror should an object be placed to obtain a magnification of:
(a) -3
(b) + 2.5

24. Observe the table given below and answer the questions: - (2)

Sr. No.	Symbol used in circuit diagram
1.	
2.	

i) What does the symbol (1.) in the table given above represents?
ii) Which electrical component is represented when symbol (2.) is used in circuit diagram?

25. State 10% law. Explain with an example how energy flows through different trophic levels. (2)

26. Why are asexually reproducing organisms capable of showing hereditary features? (2)

Section C

27. What is translocation? Why is it essential for plants? (3)

OR

Offspring formed due to sexual reproduction have better chances of survival. Why? Is this statement always true?

28. Give an example of a metal which (3)
(i) is a liquid at room temperature

(ii) can be easily cut with a knife

(iii) is the best conductor of heat

29. A compound X which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water. (3)

a) Identify compound X.

b) Write the chemical equation for its preparation.

c) For what purpose is it used in hospitals?

30. The image of an object placed at 25 cm in front of a concave mirror is obtained on a screen at a distance of 50 cm from it. Find the focal length of the lens. What would be the height of the image if the object is 2 cm high? (3)

31. An electric appliance of 1.5 kW power rating operates on a 220V main supply and has a current rating of 5 A. Is this fuse suitable for this electrical appliance? Explain. (3)

32. An object 4 cm in size is placed at a distance of 8 cm from a convex mirror of radius of curvature 20 cm. Find the nature, position and size of the image. (3)

33. A pea plant with blue flowers denoted by BB is cross-bred with a pea plant with white flowers denoted by ww. (3)

(a) What is the expected flower colour in the F_1 progeny?

(b) What will be the percentage of plants bearing white flowers in the F_2 generation when the flowers of F_1 plants are self-pollinated?

(c) State the expected ratio of the genotypes BB and Bw in the F_2 progeny.

Section D

34. (5)

(a) Write the expression for the relationship between resistance and resistivity.

(b) A 1.25 kW electric oven is connected to a 230 V power source. Calculate

(i) Electric current passing through the oven

(ii) Resistance of the oven

(iii) Electric energy consumed in a 4-hour use of the oven

OR

If three resistors of 6 Ω, 7 Ω and 10 Ω are connected in series. Calculate the equivalent resistance in the circuit.

(i) What is the potential difference across the three resistors R_1, R_2 and R_3 in a series combination if the potential across the circuit is V?

(ii) What is the current along each of the resistors in a series combination if the current flowing in the circuit is I?

(iii) Is the equivalent resistance in the parallel combination of resistors more than the value of each individual resistor?

35. A compound X of sodium forms a white powder. It is a constituent of baking powder and is used in some antacid prescriptions. When heated, X gives out a gas Y and steam. The gas Y forms a white precipitate with limewater. Write the chemical formula and name of compound X and the chemical equation for its decomposition on heating. What is its role in baking powder and in antacids? (5)

36.

(a) What are different ways in which glucose is oxidised to provide energy in various organisms?

(b) What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration? (5)

OR

(a) Why energy transfer is said to be unidirectional whereas biochemical transfer is said to be cyclic?

(b) Suggest any three activities in daily life which are eco-friendly.

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Sample Paper 14– Solution

Section A

1. The ability of a lens to converge or diverge the rays of light is called power of a lens. It is equal to the reciprocal of the focal length.
   P =1/f (in metre)

   OR

   Regular reflection

2. Kilowatt-hour is the commercial unit of energy.

3. (c)

   $\angle i = 90^0 - 30^0 = 60^0$

   $Since \angle i = \angle r$

   $\therefore \angle r = 60^0$

   angle between incident ray and reflected ray

   $\angle i + \angle r \Rightarrow 60^0 + 60^0 = 120^0$

4. Nutrition, respiration, transportation and excretion.

5. 1% of solar radiation is absorbed by the green plants during photosynthesis.

6. DNA copying is essential for inheritance of features from parents to the next generation.

   OR

   If anther is absent, then pollen grain will not be produced.

7. Plastic is not degraded by bacteria because they do not have enzymes to degrade plastic.

8. The process by which blood is cleared of metabolic wastes in case of a kidney failure is called dialysis.

9. Growth, movement or locomotion, response to, stimuli and ability to reproduce are the criteria that we use to decide whether something is alive.

   OR

   Plants get carbon dioxide from atmosphere. It gets water and minerals from the soil.

10. Diamond used for making cutting tools but graphite is not because diamond is a very hard substance and graphite is a soft substance.

11. The pH of a solution is defined as the negative logarithm (base 10) of the hydronium ion concentration present in the solution.
pH = $-\log_{10}$ [H₃O+]
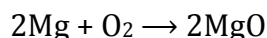
<div align="center">**OR**</div>

A solution of 'B' will have more pH than pure water i.e. above 7.

12. When quicklime is added to water, it forms slaked lime along with evolution of heat. There will be a rise in temperature of the bucket.

<div align="center">**OR**</div>

Oxygen should be in molecular form, O_2
$2Mg + O_2 \longrightarrow 2MgO$

13.
  (i) Sodium and Potassium
  (ii) Calcium and Magnesium

14. c) A is true but reason is false.
  The image of real object may be real in case of concave mirror.

15. (b) Both A and R are true, but R is not the correct explanation of the assertion.
  Metals are electropositive elements because they can form positive ions by losing electrons. Non-metals are electronegative elements because they can form negative ions by gaining electrons.

<div align="center">**OR**</div>

(a) Both A and R are true, and R is the correct explanation of the assertion.
  Silver gets deposited on the copper plate because copper is more reactive than silver and hence displaces silver from silver nitrate solution.

16. (a) Both A and R are true, and R is the correct explanation of the assertion.
  Aluminium metal does not react with water under ordinary conditions because of the presence of a thin layer of aluminium oxide on its surface.

17.
  (i)   (a) Element E: Carbon
  (ii) (a) Allotrope A: Buckminsterfullerene
  (iii) (b) Allotrope B: Graphite
  (iv) (c) Allotrope C: Diamond
  (v)   (c) Allotrope C: Diamond

18.

(i) a) Electric lamp

$V = IR; \; 240 = 0.5 \times R; \; R = 480\,\Omega$

(ii) b) 2160 W

$P = VI; P = 240 \times 9 = 2160\,W$

(iii) d) 2 A

$240 = 4 \times R; R = 60\,\Omega; V = I \times R \Rightarrow 120 = I \times 60 \Rightarrow I = 2A$

(iv) b) 120 W

$P = VI; P = 240 \times 0.5 = 120\,W$

(v) d) 92

1 W = 1 J/s

Thus, 92 Watt = 92 J/s

19.

i) a) Pulmonary system carries blood from the right ventricle to the lungs.

ii) b) The systemic vessels, carry blood from the left ventricle to the tissues in all parts of the body.

iii) c) Arteries carry blood away from the heart.

iv) a) The exchange of materials between the blood and tissue cells is done by the capillaries.

v) a) Veins carry blood towards the heart.

20.

i) d) During respiration, the first step is the break-down of glucose, a six-carbon molecule, into a three-carbon molecule called pyruvate.

ii) b) Pyruvate may be converted into ethanol and carbon dioxide. This process takes place in yeast during fermentation.

iii) c) Breakdown of pyruvate using oxygen takes place in the mitochondria.

iv) a) Breakdown of pyruvate in the absence of oxygen producing lactic acid occurs primarily in the muscle cells during heavy physical exercise.

v) b) The rate of respiration increases first with an increase in temperature and then decreases as the temperature continues to increase even further.

Section B

21.

(i) pH of a solution having pH 7 can be increased by adding a base to it such as NaOH.

(ii) pH can be decreased by adding an acid such as HCl to it. If a solution changes colour of litmus from red to blue, it shows that its pH is above 7.

OR

Solution B with pH value 9 will give pink colour with phenolphthalein. Bases give pink colour with phenolphthalein because a base will abstract two protons from phenolphthalein and the resulting phenolphthalein ion provides pink colour to the solution.

22.

(i) Though the number of shells remain the same, number of valence electrons increases by one, as we move across any given period from left to right.

(ii) While going from top to bottom in a group, the number of shells increases successively i.e. one by one but the number of valence electrons remains the same.

23. (a) Convex mirror

(b) Concave mirror

OR

(a) Between focus and centre of curvature.

(b) Between pole and focus.

24.

i) Ammeter

ii) Rheostat

25. Consider the given food chain:

Plants → Deer → Lion

As per the 10% law of energy transfer, only 10% of energy is transferred from the first trophic level to the next and 90% of the energy lost as heat to the surroundings. Let us understand this with an example. Assume that the plants or producers have 10 joules of energy, and according to 10% law, only 1 joule of energy will be available for transfer to next trophic level that is herbivores (deer) and 10% of 1 joule that is 0.1 joule of energy is available for the carnivores (lion).

26. The asexually reproducing organisms require only single parent, so when they divide the cell itself divide into two bearing no variation in DNA. So there is more chance of hereditary features.

(i) In asexual reproduction, organisms raised are the exact copy of their parents.

(ii) They exhibit very little variation due to some environmental factors or mutations which are due to sudden changes in genes out of these two factors, only mutations are inheritable.

Section C

27. Transportation of organic solutes in plants is called translocation. It is necessary because all the cells need food to carry out their vital functions. Translocation occurs in the upward as well as downward directions and in the storage organs of roots, fruits, seeds and growing organs.

<div align="center">OR</div>

Offspring formed due to sexual reproduction have better chances of survival because

- Sexual reproduction introduces genetic variation in the offspring which is essential for evolution and survival of the species.
- Offspring exhibit heterosis or hybrid vigour which enables them to adapt better to the changing environment.
- Enhanced traits allow the offspring to be tolerant and survive under adverse conditions.
- However, during sexual reproduction, there is crossing over and random selection due to which the offspring produced may have traits which are inferior to the parents.

  Hence, it is not always true that the offspring formed by sexual reproduction have better chances of survival.

28.

(i) Metal which exists in the liquid state at room temperature → Mercury

(ii) Metal which can be easily cut with a knife → Sodium

(iii) Metal which is the best conductor of heat → Silver

29.

a) The given compound X is prepared from gypsum and has the property of hardening when mixed with a proper quantity of water. It is plaster of Paris.
   Its chemical name is calcium sulphate hemihydrate, and it has chemical formula $CaSO_4.1/2\ H_2O$.

b) Preparation of plaster of Paris:

$$CaSO_4.2H_2O \xrightarrow[373K]{Heat} CaSO_4.\frac{1}{2}H_2O + 1\frac{1}{2}H_2O$$
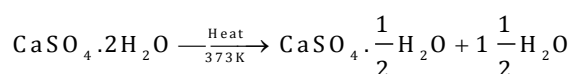
c) Uses of plaster of Paris:
   1) Plaster for supporting fractured bones
   2) For making toys, statues and decorative items

30. Object distance, u = −25 cm

Image distance, v = −50 cm

From the mirror formula,

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

$$\therefore \frac{1}{f} = \frac{1}{-50} + \frac{1}{-25} = \frac{-25-50}{1250}$$

$$\therefore \frac{1}{f} = -0.06$$

$$\therefore f = -16.66 \text{ cm}$$

Focal length of the mirror is 16.66 cm.

Height of the object, h = 2 cm

From the magnification formula,

$$m = -\frac{v}{u} = \frac{h_2}{h_1}$$

$$\therefore h_2 = -\frac{v}{u} h_1 = -\left(\frac{-50}{-25}\right) \times 2 = -4 \text{ cm}$$

Height of the image is 4 cm.

31. Power, P = 1.5 kW = 1500 W

V = 220 V

Current drawn, P = V × I

$$I = P / V$$

$$I = \frac{1500}{220}$$

$$I = 6.81 \text{ A}$$

Current drawn, I ≈ 7 A

The current drawn by the electrical appliance is 7 A which is beyond the fuse rating capacity in the circuit. Hence, when a very high current of 7 A flows through the 5 A fuse, it will melt and break the circuit. Hence, the fuse wire of 5 A rating would not be suitable for this electrical appliance.

32. Object distance, u = 8 cm

To find: Image distance (v)

$$\text{Focal length} = f = \frac{R}{2} = 10 \text{ cm}$$

$$\frac{1}{10} = \frac{1}{v} + \frac{1}{-8}$$

$$\therefore \frac{1}{v} = \frac{1}{10} + \frac{1}{8} = \frac{18}{80}$$

$$\therefore \frac{1}{v} = 0.225$$

$$\therefore v = +4.4 \text{ cm}$$

Thus, the position of the image is 4.4 cm behind the convex mirror. As the image is formed behind the convex mirror, its nature will be virtual and erect.

Magnification of the convex mirror is
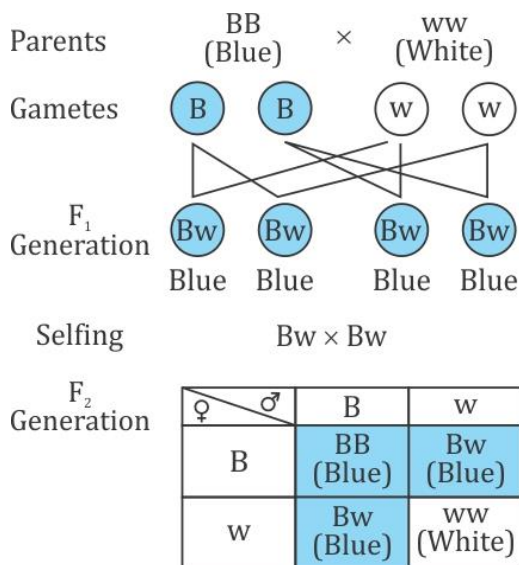
$$m = \frac{-v}{u} = -\frac{4.4}{-8} = 0.55$$

$$m = \frac{h_2}{h_1}$$

$$\Rightarrow 0.55 = \frac{h_2}{4}$$

$$\Rightarrow h_2 = 2.2 \text{ cm}$$

Thus, the size of the image is 2.2 cm.

33.

(a) The F_1 progeny is expected to have plants with blue flowers.

(b) ¼ of the F_2 generation bears white flowers. So, 25% of the F_2 progeny bears white flowers in the F_2 generation when the flowers of F_1 plants are self-pollinated.

(c) The ratio of the genotype BB and Bw in the F_2 progeny is 1 (BB):2 (Bw).

Section D

34.

(a)

$$\rho = \frac{R \times A}{\ell}$$

ρ – resistivity of material

R - resistance of conductor

A - Area of cross-section

ℓ = length of conductor

(b) Power rating of the oven, P = 1.25 kW = 1250 W

Potential difference of the power supply, V = 230 V

(i) Power is

$$P = VI$$

$$\therefore I = \frac{P}{V} = \frac{1250}{230} = 5.43 \text{ A}$$

(ii) Resistance and power are related as

$$P = \frac{V^2}{R}$$

$$\therefore R = \frac{V^2}{P} = \frac{230^2}{1250} = 42.32 \ \Omega$$

(iii) Energy consumed by the oven is

$$E = Pt$$

$$\therefore E = 1.25 \text{ kW} \times 4\text{h}$$

$$\therefore E = 5 \text{ kWh}$$

OR

Equivalent resistance when the resistors are connected in series is

→ $R_s = R_1 + R_2 + R_3$

→ $R_s = 6 + 7 + 10 = 23$ ohm

(i) The potential difference across each resistor will be different in a series combination.

Across resistor R_1, PD will be V_1; for R_2, PD will be V_2 and for R_3, PD will be V_3.

(ii) The current across the three resistors in a series combination will be the same, i.e. 'I'.

(iii) No, when the resistors are connected in parallel, the equivalent resistance is less than each of the individual resistors.

35. Baking powder consists of sodium bicarbonate, tartaric acid and a small amount of starch.

Hence, the compound X of sodium is a constituent of baking powder and is used in antacids. It is sodium bicarbonate or sodium hydrogen carbonate with the chemical formula $NaHCO_3$. It is commonly known as baking soda.

On heating, it decomposes to give sodium carbonate, water and carbon dioxide gas (Y).

$NaHCO_3 \rightarrow Na_2CO_3 + H_2O + CO_2$

Sodium   Carbon
bicarbonate   dioxide
    (X)   (Y)
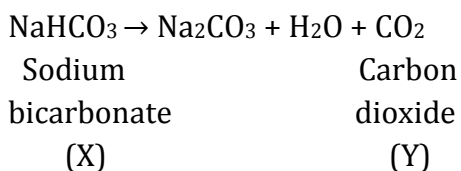
The CO_2 gas formed when passed through limewater turns it milky due to the formation of calcium carbonate, which is insoluble in water.

$Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

Lime   Calcium
water   carbonate
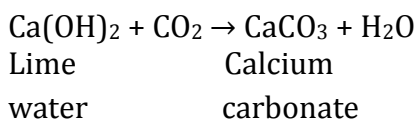
36.

(a) Breaking down of glucose involves two processes. In the first step, it is broken into three carbon molecules called pyruvate. The pyruvate is further broken down into energy in following different ways in various organisms.
<u>1) Aerobic respiration:</u> In this case pyruvate is broken down into water and carbon dioxide along with release of energy. It commonly occurs in mitochondria of cells.
<u>2) Anaerobic respiration in yeast:</u> In yeast cells during fermentation pyruvate is converted into ethanol and CO_2 in the absence of O_2.
<u>3) Anaerobic respiration in muscles:</u> Due to lack of oxygen, e.g. during vigorous running or exercise, in human muscles, pyruvate is converted to lactic acid.

(b) Terrestrial organisms breathe by using atmospheric oxygen whereas aquatic organism take oxygen dissolved in water. A terrestrial animal has over an aquatic animal with regard to obtaining oxygen for respiration. It's because the air in the atmosphere contains the maximum amount of oxygen. Oxygen level is high in the atmosphere when compared to oxygen in water. Aquatic animals have only dissolved oxygen in water which is in minimal amount. Hence, terrestrial animal has over an aquatic animal with regard to obtaining oxygen for respiration.

OR

(a) Energy transfer is said to be unidirectional because when the energy is absorbed by autotrophs from the sun, it is never reabsorbed by it. Similarly when consumers eat up the producers directly or indirectly the energy transferred in this process can never be reversed in the food chain. In biogeochemical cycles chemical elements move from environment to organism and back to the environment.

(b) <u>Activities in daily life which are eco-friendly:</u>
- Separation of biodegradable and non-biodegradable substances
- Gardening
- Use of gunny bags/paper bags in place of polythene/plastic bags
- Use of compost and vermicompost in place of fertilisers
- Harvesting rainwater