CBSE
Class X Science
Sample Paper 8

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

General Instructions:

- The question paper comprises four sections A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.
- Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each.
- 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.
- 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.
- 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.
- 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.
- 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.
- Wherever necessary, neat and properly labeled diagrams should be drawn.

Section A

1. Why convex mirror is preferred as rear-view mirror in vehicles? (1)

OR

Define principal focus for spherical mirrors.

2. What is the qualitative effect of inserting an iron core into a current-carrying solenoid? (1)

3. In torches, search lights and headlights of vehicles, the bulb is placed
a) Between the pole and the focus of the reflector
b) Very near to the focus of the reflector
c) Between the focus and centre of curvature of reflector
d) At the centre of curvature (1)

4. Which organ of female reproductive system is also known as 'birth canal'? (1)

5. List any two characters used by Mendel to conduct experiments on pea plants. (1)

6. A muscle is called as pacemaker of heart. Name it. Why we call it so? (1)

OR

In human beings RBCs are non-nucleated. Does it mean that they are prokaryotic cells?

7. Which organ of male reproductive system acts as thermoregulator? (1)

8. In which part of the chloroplast do light and dark reactions take place? (1)

9. Why some materials are biodegradable whereas others are non-biodegradable? (1)

OR

In a food chain consisting of snake, insect, grass and frog, assign an appropriate trophic level to frog.

10. Fill in the following blanks with suitable words: (1)

(a) Chemical equations are balanced to satisfy the law of _____.

(b) A solution made in water is known as an ____ solution and indicated by the symbol _____.

11. How does the atomic size vary on going down from top to bottom in a group of the periodic table? Why does it vary this way? (1)

OR

Lithium, sodium and potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements? Explain your answer.

12. In addition to some propane and ethane, LPG cylinders contain mainly two isomers of another alkane. Name the two isomers and write their condensed structural formula. (1)

OR

Why does carbon form compounds mainly by covalent bonding?

13. Write the balanced chemical equations for the following reactions: (1)

(a) Calcium hydroxide + Carbon dioxide gives Calcium carbonate + Water

(b) Aluminium + Copper chloride gives Aluminimun chloride + Copper

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**: Refractive index of glass with respect to air is different for red light and violet light.
Reason: Refractive index of a pair of media depends on wavelength of light used. (1)

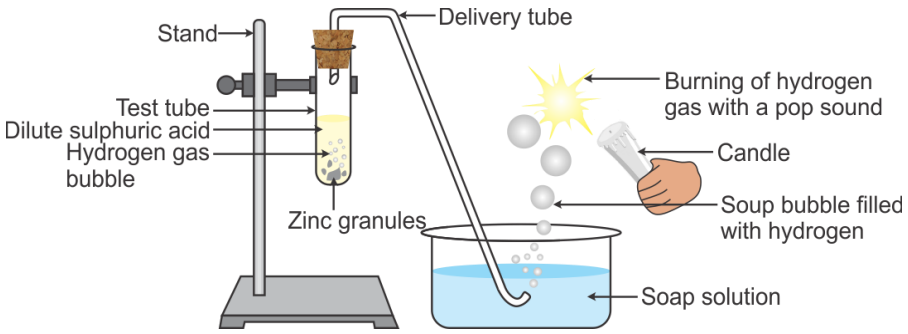
15. **Assertion**: The noble gases are placed in a separate group. (1)
Reason: The noble gases are chemically very inert or unreactive and having completely filled outermost electron shells.

OR

Assertion: All the elements of a group have different chemical properties.
Reason: All the elements of a group have same no. of valence electrons in their outermost shell.

16. **Assertion**: Iron or zinc does not occur free in nature. (1)
Reason: Iron and zinc are quite reactive and hence they do not occur in the free state.

17. Read the following and answer any **four** questions from 17 (i) to 17 (v) (1×4)
The preparation of hydrogen gas from zinc granules is shown in the following schematic diagram.



What will happen if

i) Zinc dust is used instead of zinc granules?
(a) The reaction will take place at a greater speed
(b) The reaction will take place at a slower speed
(c) The reaction will take place at a moderate speed
(d) The reaction will stop hence, no gas will evolve.

ii) Nitric acid is used Instead of sulphuric acid?
(a) Hydrogen gas will produced
(b) Oxygen gas will produced
(c) Hydrogen gas will not produced
(d) No reaction will occur hence, no gas will evolve.

iii) Copper turnings are used in place of zinc?
(a) The reaction will take place at a greater speed
(b) The reaction will take place at a slower speed
(c) The reaction will take place at a moderate speed
(d) No reaction will occur hence, no gas will evolve.

iv) Sodium hydroxide is used in place of dilute sulphuric acid and heat is provided?
(a) Hydrogen gas will produced
(b) Oxygen gas will produced
(c) Carbon dioxide gas will produced
(d) No reaction will occur hence, no gas will evolve.

v) The reaction occurs between sodium hydroxide and zinc is

(a) $2Zn + NaOH \xrightarrow{heat} Na_2ZnO_2 + 2H_2 \uparrow$

(b) $Zn + 2NaOH \xrightarrow{heat} Na_2ZnO_2 + H_2 \uparrow$

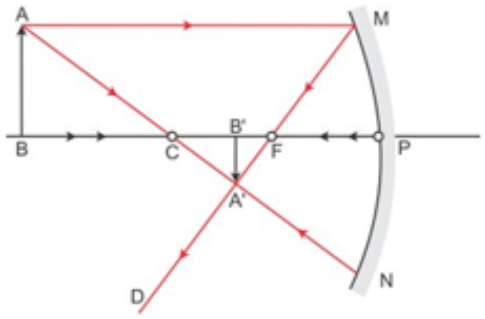
(c) $Zn + 2NaOH \xrightarrow{heat}$ No Reaction

(d) $Zn + 2NaOH \xrightarrow{heat} Na_2O + ZnO_2 + H_2 \uparrow$

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

The figure given below illustrates the ray diagram for the formation of image by a concave mirror.

The position of the is beyond the centre of the curvature of the concave mirror. On basis of the given figure answer the questions given below.



i) If focal length of the concave mirror is 10 cm, the image formed will be at a distance _____.
a) Between 10 cm and 15 cm
b) Between 10 cm and 20 cm
c) Beyond 20 cm
d) At 20 cm

ii) In case of concave mirror, the image distance from the pole of the mirror is
a) Always positive
b) Always negative
c) Negative or positive depending upon the position of the object
d) None of these

iii) If the size of the object in the given figure is 5 cm and the magnification produced is – 0.5. The size of the image is
a) – 2.5 cm
b) – 0.1 cm
c) 2.5 cm
d) 0.1 cm

iv) A negative sign in the magnification value indicate that the image is
   a) Real and inverted
   b) Real and erect
   c) Virtual and erect
   d) Virtual and inverted

v) If the value of magnification is greater than 1 then it indicates that the image formed is
   a) Diminished
   b) The same size as that of the object
   c) Enlarged
   d) Value of magnification cannot specify whether the image is diminished or magnified

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

We all obtain our nutrients from different sources which are later digested and metabolized in our body. After metabolic reactions, the body starts to sort out useful and toxic substances in an individual. As we all know, the accumulation of the toxins may be harmful and the body removes all the metabolic wastes by the process called excretion. Different organisms follow different modes of excretion such as kidney, lungs, skin and eyes depending on their habitat and food habit.

i) Which of the following excretes wastes in the form of ammonia?
   a) Pigeon
   b) Shark
   c) Tiger
   d) Spider

ii) What are the main excretory organs in humans?
   a) Kidney
   b) Skin
   c) Lungs
   d) Cloaca

iii) The storage of urine occurs in the
   a) Ureter
   b) Kidney
   c) Urinary bladder
   d) Urethra

iv) Which of the following is the correct order of urine formation in humans?
   a) Glomerular filtration → Tubular reabsorption → Secretion
   b) Tubular reabsorption → Glomerular filtration → Secretion
   c) Tubular reabsorption → Secretion → Glomerular filtration
   d) Glomerular filtration → Secretion → Tubular reabsorption

v) The opening of the urethra is guarded by the
   a) Anal sphincter
   b) Urethral sphincter
   c) Pyloric sphincter
   d) Rectal sphincter

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

Mendel proposed two general rules to consolidate his understanding of inheritance in monohybrid crosses. These are called the Principles or Laws of Inheritance: the First Law or Law of Dominance and the Second Law or Law of Segregation.

The Law of Dominance is used to explain the expression of only one of the parental characters in a monohybrid cross in the F_1 and the expression of both in the F_2. It also explains the proportion of 3:1 obtained at the F_2.

The Law of Segregation is based on the fact that the alleles do not show any blending and that both the characters are recovered as such in the F_2 generation though one of these is not seen at the F_1 stage. Though the parents contain two alleles during gamete formation, the factors or alleles of a pair segregate from each other such that a gamete receives only one of the two factors. A homozygous parent produces all gametes that are similar while a heterozygous one produces two kinds of gametes each having one allele with equal proportion.

i) In a dihybrid cross, pure homozygous plants will be
   a. 9
   b. 2
   c. 1
   d. 3

ii) Mendel observed red flowers in F_1 generation, when he crossed red and white because of
   a. Dominance
   b. Recessive gene
   c. Law of independent assortment
   d. Law of segregation

iii) The blood group containing anti A and anti B is
   a. Blood group A
   b. Blood group B
   c. Blood group AB
   d. Blood group O

iv) A typical genotypic monohybrid ratio is
   a. 9:3:3:1
   b. 1:2:1
   c. 3:1
   d. 9:7

v) Independent assortment of Mendel was proved by
   a. Monohybrid cross
   b. Dihybrid cross
   c. Incomplete dominance
   d. Back cross

SECTION B

21. What are Dobereiner's law of triad? Give one example of a Dobereiner's triad. (2)

OR

Give important conclusions by Newland's law of octaves.

22. Why do gold ornaments look new even after several years of use? (2)

23. An object 20 cm from a spherical mirror gives rise to a virtual image 15 cm behind the mirror. Determine the magnification of the image and the type of the mirror used. (2)

OR

What is the nature of the image formed by a convex lens if the magnification produced by the lens is +3?

24. Observe the given table in which the values of current flowing through a conductor for corresponding values of potential difference across the conductor. (2)

Current (A)	Potential difference (V)
0.1	2.5
0.2	5.0
0.4	10.0
0.8	20.0
1.0	25.0

(a) Plot a graph between current and voltage.
(b) Calculate the resistance of the conductor.

25. Explain the cause of cramps after excessive physical exercise. (2)

26. Why did Mendel choose pea plants for his experiments? (2)

SECTION C

27. DDT that was sprayed in minute amount on food plants was detected in high concentration in man? How did it happen? Explain. (3)

OR

(a) Differentiate between autotrophs and heterotrophs.

(b) Who constitutes the first trophic level in a food chain?

28. Write balanced equations and identify the type of reaction involved for the following: (3)

(a) Aluminium + Bromine → Aluminium bromide

(b) Calcium carbonate → Calcium oxide + Carbon dioxide

(c) Silver chloride → Silver + Chlorine

29. When a sodium compound 'X' which is also used in a soda-acid fire extinguisher is heated, it gives a sodium compound 'Y' along with water and carbon dioxide. 'Y' on crystallisation forms a compound 'Z'. (3)

(a) Identify 'X', 'Y' and 'Z'.

(b) How can we obtain 'Y' from 'Z'?

(c) Write two uses of compound 'Z'.

30. Draw a ray diagram for the following positions of the object placed in front of a convex lens:

(a) Between the pole of the mirror and F

(b) Between F and 2F (3)

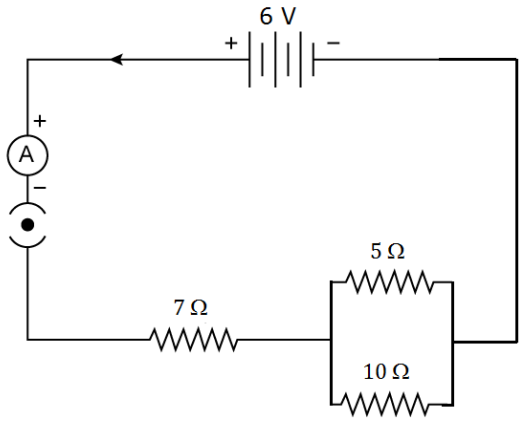
31.

(a) Define power.

(b) What is the SI unit of power?

(c) What is the commercial unit of electrical energy? (3)

32. From the following electric circuit:



Calculate:

(i) Resultant resistance and current

(ii) Heat energy evolved when the circuit is switched on for 30 minutes (3)

33.

(a) If a purple-flowered pea plant (PP) is crossed with a white-flowered pea plant (pp), will we have white-flowered pea plants in the F_1 generation? Explain.

(b) What do you mean by dominant and recessive traits

SECTION D

34. Compare the heat produced when two identical resistors of resistance 'R' with a potential difference of 'V' for time 't' are connected in a

(i) Series combination

(ii) Parallel combination (5)

OR

Derive the expression for equivalent resistance if three resistors R_1, R_2 and R_3 are connected in a parallel combination.

35. (5)

(a) Write two points of difference in the structures of diamond and graphite.

(b) Explain why graphite can be used as a lubricant but diamond cannot.

(c) State the two properties of carbon which led to the huge number of carbon compounds.

(d) Both carbon and silicon belong to Group 14 of the periodic table.
But the tendency to exhibit catenation in carbon is much more than silicon.Explain.

36.

(a) List any two advantages of vegetative propagation.

(b) Diagrammatically explain the process of reproduction in *Amoeba*.

(c) Where does fertilisation occur in the female reproductive tract?

OR

(a) What happens if an egg is not fertilised?

(b) Why do we need to adopt contraceptive measures?

(c) Name one bacterial and one viral sexually transmitted disease.

(d) How does the embryo get nourishment inside the mother's body?

CBSE
Class X Science
Sample Paper 8– Solution

Section A

1. Convex mirror gives virtual, erect image when object is beyond focus and gives wide field of view.

OR

Incident rays parallel to principal axis, after reflection either meet at point or appear to meet at point on principal axis.
This point is called principal focus.

2. Magnetic field becomes very strong.

3. b) very near to the focus of the reflector
The rays of light passing through the principal focus will go parallel to principal axis after reflection thus, forming a concentrated beam of light.
Thus, in torches, headlights the bulb is placed very near to focus of the reflector.

4. Vagina is also known as 'birth canal'.

5. Characters used by Mendel to conduct experiments on pea plants include seed colour and flower colour.

6. A node located in the right auricle (sino-auricular node or SA node) is called the pacemaker because it generates heart impulses.

OR

No, RBCs are not prokaryotic cells as all the other cell organelles in it are bound by a membrane. The RBCs are enucleated because the space inside it is occupied by the red pigment hemoglobin.

7. Scrotum acts as thermoregulator.

8. Light reaction of photosynthesis take place in the thylakoids while the dark reaction take place in the stroma or matrix of the chloroplast.

9. It is due to the property of decomposer organisms of being specific in their action that some waste materials are biodegradable whereas others are non-biodegradable.

OR

Grass → insect → frog → snake
Frog belongs to third trophic level or the level of secondary consumers.

10.
(a) Conservation of mass
(b) Aqueous; (aq)

11. On going down in a group of the periodic table, the atomic size increases. When we move from top to bottom in a group, a new shell of electrons is added to the atoms at every step due to which the size of atom increases.

OR

The similarity in the atoms of lithium, sodium and potassium is that all of them have 1 valence electron each.

12. n-butane and iso-butane.

OR

Carbon forms covalent bonds because it can achieve the inert gas electron arrangement only by sharing of electrons.

13.
(a) $Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$
(b) $2Al + 3CuCl_2 \longrightarrow 2AlCl_3 + 3Cu$

14. (a) Both A and R are true and R is the correct explanation of the assertion.
Refractive index of any pair of media is inversely proportional to wavelength of light.
Hence, wavelength of violet light is less than wavelength of red light. Thus, refractive index of red light is less than refractive index of violet light.

15. (a) Both A and R are true, and R is the correct explanation of the assertion.
The noble gases are placed in a separate group because they are chemically very inert or unreactive and having completely filled outermost electron shells.

OR

(d) A is false, but R is true.
All the elements of a group have similar chemical properties because they have same no. of valence electrons in their outermost shell.

16. (a) Both A and R are true, and R is the correct explanation of the assertion.
Iron and zinc are quite reactive and hence they do not occur in the free state. The compounds of metals found in nature are their oxides, carbonate and sulphides.

17.

i) (a) If we place zinc dust instead of zinc granules, then the reaction will take place at a greater speed as zinc dust provides more surface area than zinc granules.

ii) (c) There will be no hydrogen gas produced when nitric acid is used in place of dilute sulphuric acid, because being a strong oxidising agent, nitric acid oxidises hydrogen to water.

iii) (d) Copper does not react with any dilute acid; hence, no gas will evolve.

iv) (a) On heating zinc and sodium hydroxide, hydrogen gas is evolved as zinc reacts with both acids and bases.

v) (b) $Zn + 2NaOH \xrightarrow{heat} Na_2ZnO_2 + H_2 \uparrow$

18.

i) b) between 10 cm and 20 cm

The focal length of the mirror is 10 cm. This mean, the radius of curvature is 20 cm. From figure, it is clear that the image is formed between the focus and centre of curvature. Thus, the image is formed between 10 cm and 20 cm.

ii) c) Positive or negative depending upon the position of object

When the object is placed between the pole and focus of concave mirror, the image is formed behind the concave mirror in this case the image distance is positive. When the object is placed beyond or at the focus, the image is formed in front of the mirror and in this case the image distance is negative.

iii) a) -2.5 cm

$m = h_2 / h_1$

$h_2 = (- 0.5 \times 5) / 10$

$h_2 = - 2.5$ cm

iv) a) real and inverted

A negative sign in magnification value indicate that the image formed is real ad inverted.

v) c) enlarged

When the value of magnification of the image is greater than 1 then it indicates that the image formed is enlarged.

19.

i) b) Aquatic animals such as shark excrete waste in the form of ammonia.

ii) a) Kidneys are the main excretory organs in humans.

iii) c) Urinary bladder is a muscular sac-like structure, which stores urine.

iv) a) The urine is formed in the nephrons and involves the steps of glomerular filtration, tubular reabsorption and secretion.

v) b) The opening of the urethra is guarded by the urethral sphincter.

20.

i) b; In a dihybrid cross, there will be 2 homozygous plants.

ii) a; When two parents are intercrossed with each other, the hybrid produced is the mid-way between two parents.

iii) d; The blood group containing both antibodies, anti A and anti B forms blood group O.

iv) b; A typical genotypic monohybrid ratio is 1:2:1.

v) b; Independent assortment of Mendel was proved by dihybrid cross.

SECTION B

21. Certain chemically similar elements are arranged into set of three elements are called triads. When these elements are arranged in order of their atomic mass, the atomic mass of the middle element is approximately average of the atomic masses of the other two.

For Example - Lithium, Sodium, Potassium

OR

Important conclusions of Newland's law of octaves are-

(i) It was the first logical attempt to classify elements on the basis of atomic masses.

(ii) Periodicity of elements was recognized for the first time.

22. Gold occupies the lowest position in the metal activity series. This means it will not react with other molecules easily.

Gold is a noble element and will not form new compounds easily. Hence gold ornaments look new even after several years of use.

23.

u=-20cm

v=15cm (virtual image)

We know that,

m = -v/ u = - 15/ (-20) = 0.75

The magnification sign is positive while the value 0.75 is less than 1.

This indicates that the mirror is convex mirror.

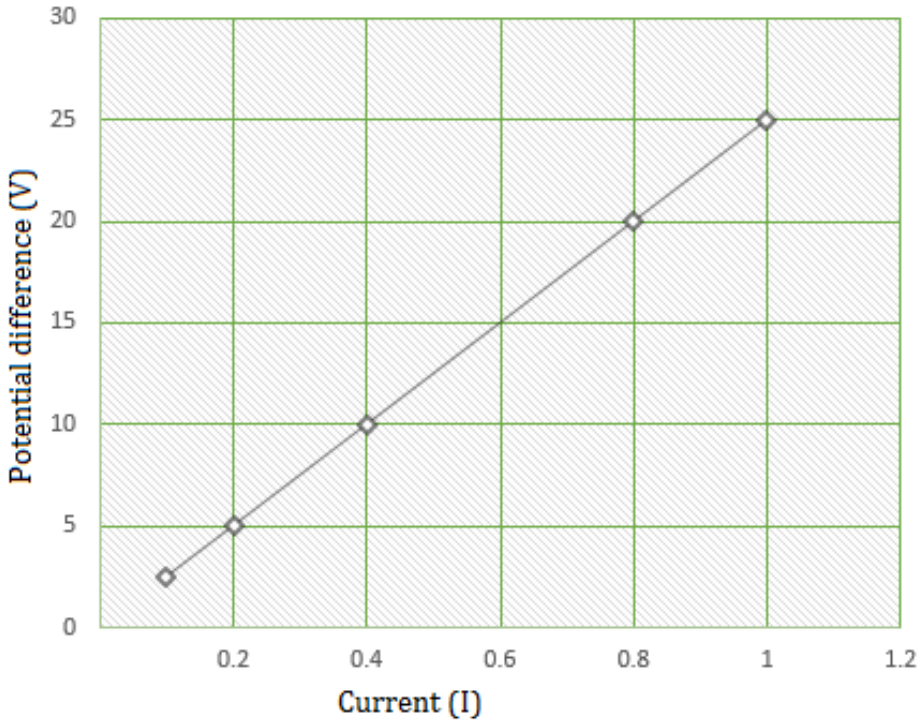
The mirror used is of convex type.

OR

The image will be virtual and erect, since the magnification has positive value.

24.

(a)



(b) Resistance of the conductor is

$$R = \frac{V}{I} = \frac{10}{0.4} = 25\ \Omega$$

25. During strenuous exercise, our body requires instant energy and it is fulfilled through anaerobic respiration. Muscle cells break down glucose to produce lactic acid and energy. A lot of lactic acid gets accumulated in our muscles and this causes muscle cramps.

26. Mendel choose pea plants for his experiments because of the following reasons:

- Easy to grow.
- Flowers are hermaphrodite, i.e flowers have bisexual characteristics.
- Easy to obtain pure breed plant through self-fertilization.
- Generation time is less.

SECTION C

27. DDT that was sprayed in minute amount on food plants was detected in high concentration in man due to biological magnification. When pesticides like DDT are used to protect crops from diseases and pests. These non-biodegradable substances enter the soil. From soil these substances are absorbed by plants along with water and minerals. The food plants when consumed by organisms, they get accumulated at different trophic levels. As the human beings occupy the top position in any food chain, maximum concentration of such harmful chemicals get accumulated in the bodies of man.

OR

(a) Differences between autotrophs and heterotrophs:

Autotrophs	Heterotrophs
1. They can prepare their own food using inorganic materials from the environment.	1. They cannot prepare their own food and hence depend on other organisms for their food.
2. They use CO_2 and release O_2 in the environment.	2. They use O_2 and release CO_2 in the environment.
3. Example: Green plants	3. Example: Animals and human beings

(b) Producers (green plants) constitute the first trophic level in any given food chain.

28.

(a) $2Al + 3Br_2 \rightarrow 2AlBr_3$; combination reaction

(b) $CaCO_3 \rightarrow CaO + CO_2$; decomposition reaction

(c) $2AgCl \rightarrow 2Ag + Cl_2$; decomposition reaction

29.

(a) X: $NaHCO_3$, Y: Na_2CO_3, Z: $Na_2CO_3.10H_2O$

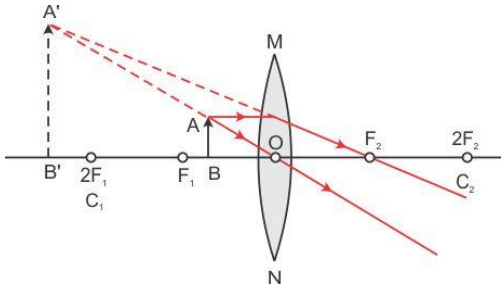
(b) By heating

$$Na_2CO_3.10H_2O \xrightarrow{\Delta} Na_2CO_3 + 10H_2O$$

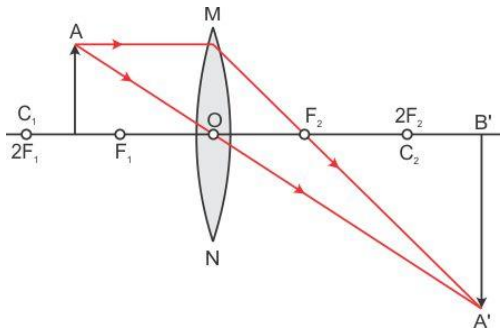
(c) It is used for washing purposes and for removing the permanent hardness of water.

30.

(a) Between the optical centre and the principal focus (F)



(b) Between F and 2F



31.

(a) Work done per unit time is called power.

(b) The SI unit of power is Watt (W).

(c) The commercial unit of electrical energy is kilowatt-hour (kWh).

32. For the given circuit,

(i) Resultant resistance is

$$R_{eq} = 7 + 5||10$$

$$\therefore R_{eq} = 7 + \frac{10 \times 5}{10 + 5} = 7 + \frac{50}{15}$$

$$\therefore R_{eq} = \frac{105 + 50}{15} = \frac{155}{15} = 10.33\ \Omega$$

Total current is

$$I = \frac{V}{R_{eq}}$$

$$\therefore I = \frac{6}{10.33} = 0.58\ A$$

(ii) Heat energy evolved in this circuit if it is switched on for 30 min.

By Joule's law of heating,

$$H = I^2Rt$$

$$H = 0.58^2 \times 10.33 \text{ x } (30 \times 60)$$

$$H = 0.3364 \times 10.33 \times 1800$$

$$H = 6255\ J/s$$

33.

(a) No. We will not have white-flowered pea plants in the F_1 generation. This is because all the F_1 progeny plants show genetic makeup Pp. Since P is a trait dominant over p, all the plants in the F_1 generation have purple flowers.

(b) A dominant trait is a genetic trait which is expressed in a person who has only one copy of that gene. A recessive trait is a genetic trait which is expressed only when two copies of the gene are present.

SECTION D

34.

(i) When the resistors are connected in series:

$R_s = R + R = 2R$

$\therefore H_s = \frac{V^2}{R_s} = \frac{V^2}{2R}$ ..... (1)

(ii) When the resistors are connected in parallel:

$\frac{1}{R_p} = \frac{1}{R} + \frac{1}{R} = \frac{2}{R}$

$\therefore R_p = \frac{R}{2}$

$\therefore H_p = \frac{V^2}{R_p} = \frac{2V^2}{R}$ ..... (2)

From (1) and (2),

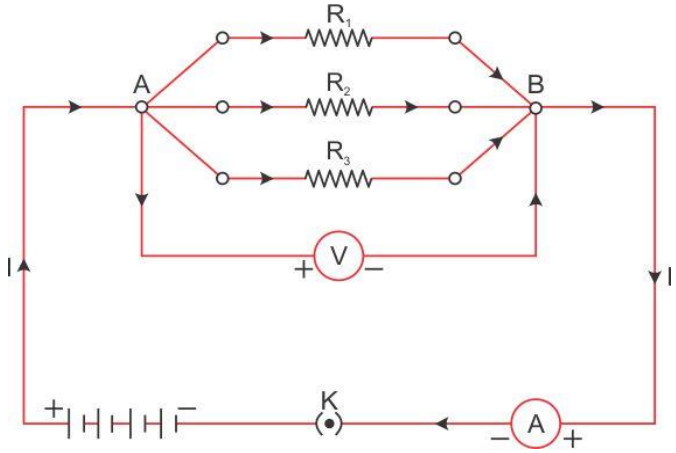
$\frac{H_s}{H_p} = \frac{V^2}{2R} \times \frac{R}{2V^2} = \frac{1}{4}$

$\therefore H_p = 4H_s$

OR

<u>Derivation for equivalent resistance if three resistors are connected in parallel: -</u>

Two or more resistors joined to the same end are connected in parallel.



Potential difference in a parallel circuit remains the same across all resistors. Current is the sum of the currents across all the individual resistors.

$I = I_1 + I_2 + I_3$ ..... (1)

Let R_p be the resultant resistance of the circuit.

On applying Ohm's law to the entire circuit,

$$I = \frac{V}{R_p} \quad \text{..... (2)}$$

Now applying Ohm's law to individual resistances,

$$\left.\begin{aligned} I_1 &= \frac{V}{R_1} \\ I_2 &= \frac{V}{R_2} \\ I_3 &= \frac{V}{R_3} \end{aligned}\right\} (3)$$

From equations (1), (2) and (3),

$$\frac{V}{R_p} = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$$

$$\therefore \frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

35.

(a)

Diamond	**Graphite**
(i) Each carbon atom is linked to four other carbon atoms. (ii) A diamond crystal has a tetrahedral arrangement of carbon atoms.	(i) Each carbon atom is joined to three other carbon atoms. (ii) A graphite crystal has a flat hexagonal ring structure.

(b) Powdered graphite can be used as a lubricant because of its softness, whereas diamond being extremely hard cannot be used as a lubricant.

(c)

(i) Catenation

(ii) Linking of carbon with other atoms

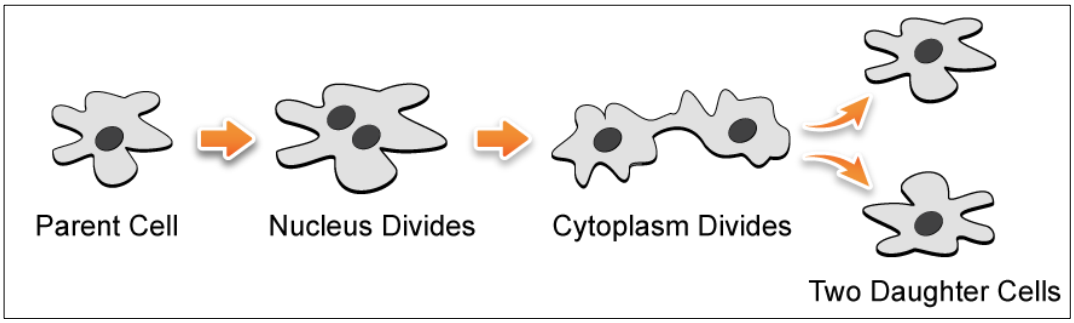
(d) The size of the silicon atom is larger than the carbon atom because the atomic size increases down the group. Therefore, the C–C bond is smaller and stronger than the Si–Si bond. As a result, any number of carbon atoms can be linked to each other resulting in a large number of carbon compounds. However, this is not possible in silicon and only a few atoms can be linked by covalent bonds.

36.

(a) <u>Advantages of vegetative propagation:</u>

- It helps in producing identical clones.
- It helps in producing plants which do not produce viable seeds or produce very few seeds.

(b) *Amoeba* commonly reproduces by the method of binary fission.



Binary Fission in *Amoeba*

(c) Fertilisation occurs in the fallopian tube or oviduct of the female reproductive tract.

OR

(a) If an egg is not fertilised by a sperm, then blood along with cellular debris comes out through the vagina; this process is called menstruation.

(b) <u>Need to adopt contraceptive measures:</u>

- To prevent unwanted pregnancies
- To prevent sexually transmitted diseases
- Spacing between children
- Sound health

(c) <u>Sexually transmitted diseases:</u>

- Bacterial – Gonorrhea
- Viral – AIDS

(d) The embryo gets its nourishment inside the mother's body with the help of the placenta.