CLASS - X (CBSE SAMPLE PAPER) | SCIENCE

SAMPLE PAPER

TIME : 3 HRS. **MAX. MARKS : 80**

GENERAL INSTRUCTIONS :

1. **The question paper comprises four Sections A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.**
2. **Section A: Qns. 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.**
3. **Section B: Qns. 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.**
4. **Section C: Qns. 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.**
5. **Section D: Qns. 34 to 36 are long answer type question carrying 5 marks each. Answer to these questions should be in the range of 80 to 120 words.**
6. **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**
7. **Wherever necessary, neat and properly labelled diagrams should be drawn.**

SECTION-A

1. Write chemical equation for the reactions taking place when, iron oxide is heated with aluminium powder.

2. Which of the following is a physical change freezing of water or rusting of iron?

3. Which of the following element is not a non-metal?

(1) Carbon (2) Magnesium (3) Sulphur (4) Iodine

4. A lens has a focal length of –50 cm. What type of lens is it?

OR

To a cat on the bank of a lake, where will a fish appear to be in respect to its actual position in water?

5. What is the minimum resistance which can be made using five resistors each of $\frac{1}{5}\Omega$?

6. Which rule gives the direction of force acting on a current-carrying conductor kept in a magnetic field?

7. Which type of mirror is used by dentist?

8. Which phenomena is responsible for twinkling of stars?

OR

At noon, why does the sun appear white?

9. Name the main excretory product and excretory organ of cockroach.

10. What do you mean by abiotic components of an ecosystem? Give two examples.

11. Name the respiratory pigment in human beings. Where is this pigment found?

12. List any four characters of garden pea plant studied by Mendel.

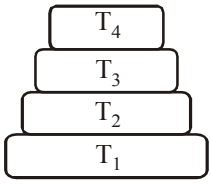
13. In the given figure the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available ?

(1) T_4

(2) T_2

(3) T_1

(4) T_3



Directions : Assertion-Reason Type Questions (Q. Nos. 14-16)

In each of the following questions, a statement of Assertion is given by the corresponding statement of Reason. Of the statements, mark the correct answer as :

(1) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(2) If both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(3) If Assertion is true, but Reason is false.

(4) If Assertion is false, but Reason is true.

14. **Assertion (A) :** Gas bubbles are observed when sodium carbonate is added to dilute hydrochloric acid.
Reason (R) : Carbon dioxide is given off in the reaction.

15. **Assertion :** Placenta is connected to the foetus by an umbilical cord.
Reason : Uterus is the site of implantation in human body.

OR

Assertion : The zygote developed from sexual reproduction is diploid.
Reason : In sexual reproduction, haploid gametes fuse and form zygote.

16. **Assertion :** Ammeter is connected in series with the device through which current is to be measured.
Reason : The ammeter has very small resistance, so that it has very little effect on the current being measured.

Directions : Q. Nos. 17-20 contain five sub-parts each. You are expected to answer any four sub parts in these questions.

17. **Read the following passage. Answer any four questions from 17 (a) to 17 (e).**

The stage of respiration during which air is inhaled into the lungs through the mouth or nose due to muscle contraction and then exhaled due to muscle relaxation is called breathing. Inhalation is intake of fresh air from outside into the alveoli of the lungs. The mechanism of breathing out of carbon dioxide is called exhalation.

(a) The breathing movements of the lungs in mammals are governed by

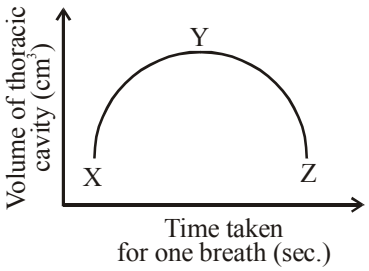
(1) muscular walls of lung

(2) diaphragm

(3) intercostal muscles

(4) both (2) and (3)

(b) The given graph shows changes in the volume of thoracic cavity in a normal human being while breathing.



Select the correct option regarding this.

(1) From X to Y pressure in lungs increases whereas from Y to Z pressure in lungs decreases.

(2) From X to Y ribs move upward and outward whereas from Y to Z ribs move downward and inward.

(3) At point Y diaphragm is dome shaped whereas at points X and Z it is flat.

(4) X to Y represents exhalation and Y to Z represents inhalation.

(c) Diaphragm is a thin muscular membrane that separates abdominal cavity from thoracic cavity. When diaphragm of man is completely dome shaped it shows _____

(1) End of expiration and beginning of inspiration

(2) Beginning of expiration and end of inspiration

(3) Increased rate of breathing

(4) Decreased rate of breathing

(d) When we breathe in, we inhale many gases, including oxygen. What happens to the gases that the body can't use ?

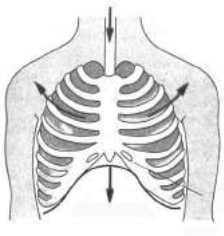
(1) They are exhaled.

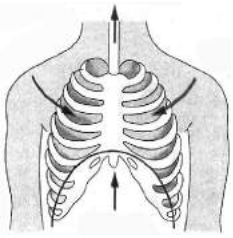
(2) They are changed into oxygen by the lungs.

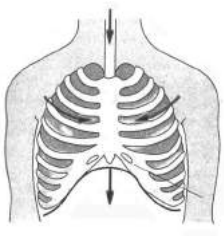
(3) They circulate through the body and are disposed off later.

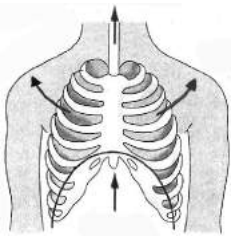
(4) They are absorbed into the digestive system and used to create energy.

(e) Which figure illustrates the process of inhalation?

(1) 

(2) 

(3) 

(4) 

18. Read the following passage. Answer any four questions from 18 (a) to 18 (e).

The phenomenon of existence of an element in two or more forms which have different physical properties but identical chemical properties is called as Allotropy. The different forms are called allotropes. Carbon forms three crystalline allotropes which are Diamond, Graphite and Fullerene.

(a) What is the atomic symbol of diamond?

(1) S (2) D (3) I (4) C

(b) Which of the following substances is used in pencil leads?

(1) Diamond (2) Graphite (3) Coal (4) Coke

(c) Which of the following is not an use of diamond?

(1) In jewellery (2) As a dry lubricant

(3) In cutting glass (4) In heat sensitive thermometers

(d) Why graphite is used for making electrodes for cells?

(1) It is transparent (2) It is colourless

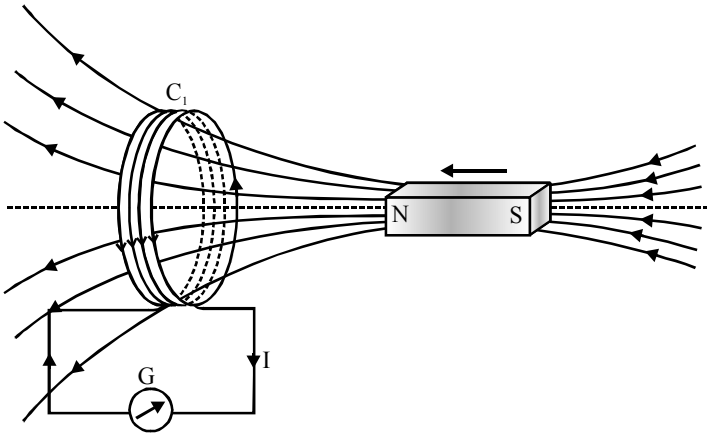
(3) It is opaque (4) It is a good conductor of electricity

(e) Which of the following has tetrahedral arrangement of atoms in its structure?

(1) Diamond (2) Graphite (3) Fullerene (4) All

19. Read the following passage. Answer any four questions from 19 (a) to 19 (e).

Figure shows a coil C_1 connected to a galvanometer G. When the North-pole of a bar magnet is pushed towards the coil, the pointer in the galvanometer deflects, indicating the presence of electric current in the coil. The deflection lasts as long as the bar magnet is in motion. The galvanometer does not show any deflection when the magnet is held stationary.



When the magnet is pulled away from the coil, the galvanometer shows deflection in the opposite direction, which indicates reversal of current's direction. Moreover, when the South-pole of the bar magnet is moved towards or away from the coil, the deflection in the galvanometer are opposite to that observed with the North-pole for similar movements. Further, the deflection (and hence current) is found to be larger when the magnet is pushed towards or pulled away from the coil faster. It shows that it is the relative motion between the magnet and the coil that is responsible for generation (induction) of electric current in the coil.

It is clear from the above experiment that when magnetic flux changes through a coil, a current is induced in the coil. Quicker the relative motion between the magnet and the coil, greater is the rate of change of magnetic flux through the coil and larger is the current induced in it. This is the elementary idea of electromagnetic induction.

(a) Which of the following gives the direction of the induced current in a conductor?

(1) Ampere's law (2) Ohm's law

(3) Fleming's right hand rule (4) Fleming's left hand rule

(b) If the bar magnet is held fixed and coil C_1 is moved towards or away from the magnet, then

(1) induced current will not be produced

(2) induced current will be produced

(3) induced current will only be produced if a battery is attached near galvanometer

(4) data insufficient

(c) If the coil C_1 has on open loop structure instead of closed loop, the induced current will

(1) be produced during relative motion between coil and magnet.

(2) not be produced during relative motion between coil and magnet.

(3) the galvanometer will show deflection.

(4) none of these.

(d) If the magnet is pushed or pulled slowly away from the coil

(1) there will be no deflection in galvanometer.

(2) there will be small deflection in galvanometer.

(3) there will be large deflection in galvanometer.

(4) none of these

(e) The galvanometer _____ in circuit.

(1) detects the presence of current (2) detects the voltage

(3) detects the amount of current (4) none of these

20. Read the following passage. Answer any four questions from 20 (a) to 20 (e).

Renu adjusts a mirror in her hand to obtain a clear but smaller image of a candle flame on a white screen placed in front of the mirror.

Raman, a friend of Renu conducts an experiment using Renu's mirror and obtains the image of very distant object clearly when screen is placed at 5 cm in front of the this mirror.

(a) What type of mirror has Renu used ?

(1) Plane (2) Concave (3) Convex (4) Plane or concave

(b) What type of image of the candle flame is obtained on the screen ?

(1) Real and erect (2) Virtual and erect

(3) Real and inverted (4) Virtual and inverted

(c) If Renu covers the upper half of the mirror's reflecting surface with a black paper, what will happen?

(1) Image will disappear

(2) Only half the image is formed

(3) Whole image is formed but with less brightness

(4) Whole image is formed but with more brightness

(d) Radius of curvature of the mirror is

(1) 25 cm (2) 5 cm (3) 10 cm (4) 15cm

(e) If another object is placed at 3 cm from the mirror, the image distance is

(1) – 7.5 cm (2) – 5cm (3) +5 cm (4) +7.5 cm

SECTION-B

21. (a) Give the chemical names of acids present in

(i) Ants (ii) Lemon (iii) Milk (iv) Tomato

(b) Write the chemical names of two salts belonging to sodium family.

OR

A dry pellet of a common base B when kept in open absorbs moisture and turns sticky. The compound is also a by-product of chlor-alkali process.

(i) Identify B.

(ii) What type of reaction occurs when B is treated with an acidic oxide?

(iii) Write a balanced chemical equation for one such solution.

22. 2 g of silver chloride is taken in a china dish and the china dish is placed in sunlight for sometime. What will be your observation in this case? Write the chemical reaction involved in the form of a balanced chemical equation. Identify the type of chemical reaction.

23. Give any two function of lymph.

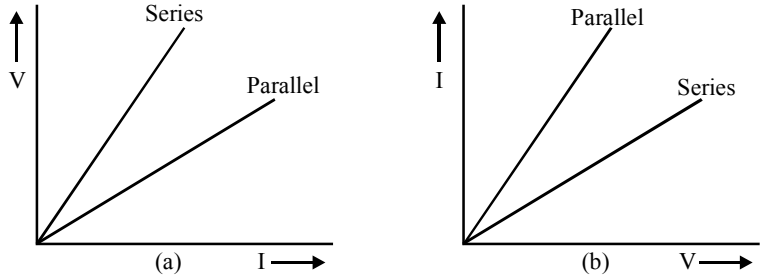
OR

Give any two function of blood.

24. What is fertilisation ? Where does it occur in a human female ?

25. Explain the phenomena of advanced sunrise and delayed sunset.

26. Two students perform the experiment on series and parallel cominations of two given reisistors R_1 and R_2 and plot the following V-I graphs (a) and (b).



Which of the graphs is (are) correctly labelled in terms of the words 'series' and 'parallel'? Justify your answer.

SECTION-C

27. (a) What is homologous series?

(b) What is isomerism. How many isomers of pentane (C_5H_{12}) exists?

(c) How many electrons are shared by each atom if they form triple bond with each other.

OR

What do you mean by double displacement reaction. Give two examples with balanced chemical equation?

28. In the reaction,

$2Cu(s) + O_2(g) \longrightarrow 2\ CuO(s)$

Identify

(a) The substance oxidized

(b) The substance reduced

(c) Oxidant

29. (a) To which group of the periodic table alkali metals belong.

(b) Magnesium is an element with atomic number 12.

(i) Is it a metal or non-metal.

(ii) Will its size be more or less than that of sodium.

30. Explain with the help of flow chart - "What determines the sex of a child genetically"?

31. How can we help in reducing the problem of waste disposal ? Suggest any three methods.

OR

Define an ecosystem. Draw a block diagram to show the flow of energy in an ecosystem.

32. (a) Draw the diagram of cross section of a leaf and label the following parts:

(i) chloroplast (ii) cuticle

(b) In certain group of plants, stomata remains closed during day. How is food synthesised by such plants?

33. Two lamps, one rated at 40W - 220 V and the other 60 W - 220 V, are connected in parallel to the electric supply at 220 V.

(i) Draw a circuit diagram to show the connections.

(ii) Calculate the current drawn from the electric supply source.

(iii) Calculate the total energy consumed by the two lamps together when they operate for one hour.

OR

Why do different colours get seperated when a white light passes through a prism? How did Newton show that white light of sun contains seven colours using two identical glass prisms?

Draw a ray diagram to show the path of light when two identical glass prisms are arranged together in inverted position with respect to each other and a narrow beam of white light is allowed to fall obliquely on one of the prisms.

SECTION-D

34. (a) Explain the formation of Magnesium Fluoride (MgF_2) by transfer of electrons.

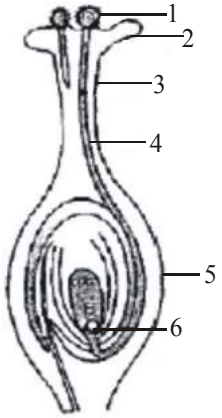
(b) Give two properties of ionic compounds.

OR

(a) Give the reaction of formation of bleaching powder.

(b) Give three uses of bleaching powder.

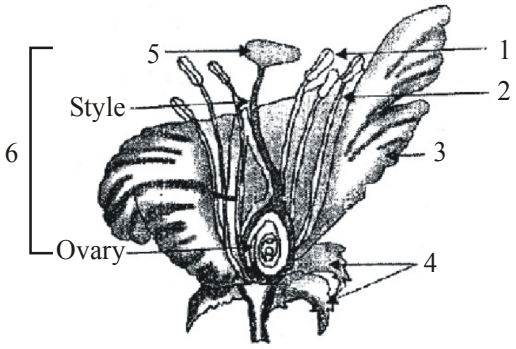
35. (a) In the given figure name the parts marked 1 to 6 :-



(b) Differentiate between Pollination and Fertilization.

OR

(a) In the given figure name the parts marked 1 to 6 :-



(b) Differentiate between self pollination and cross pollination.

36. (i) Draw a ray diagram to show the formation of image by a convex lens when an object is placed in front of the lens between its optical centre and principal focus.

(ii) In the ray diagram mark the object distance u and the image distance v with their proper signs (+ ve or - ve as per the new cartesian sign convention) and state how these distances are related to the focal length f of the convex lens in this case.

(iii) Find the power of convex lens which forms a real and inverted image of magnification -1 of an object placed at a distance of 20 cm from its optical centre.

SAMPLE PAPER SOLUTIONS

SECTION-A

1. $Fe_2O_3 + 2Al \xrightarrow{\Delta} Al_2O_3 + 2Fe + Heat$

2. Freezing of water is a physical change as no new substance is formed in this only state of substance is changing.

3. Option (2)

Magnesium is a metal as it loses electrons to form positive ion.

4. Concave lens

OR

The fish will appear above its actual position.

5. For minimum resistance parallel combination is used

$$\frac{1}{R_P} = 5 + 5 + 5 + 5 + 5$$

$$R_p = \frac{1}{25}\Omega$$

6. Fleming's left hand rule.

7. Concave mirror

8. Atmospheric refraction

OR

Light is least scattered at noon, since it travels shorter distance through atmosphere.

9. Excretory product is uric acid and Excretory organ is Malpighian tubules.

10. Abiotic components include the non-living physico-chemical factors of the environment.

Ex. air, water.

11. The respiratory pigment in human beings is haemoglobin and this pigment found in RBC's.

12. Characters of garden pea plant studied by Mendel. (any four)

	Properties	**Dominant**	**Recessive**
1	Height	Tall	Dwarf
2	Colour of seed	Yellow	Green
3	Colour of pod	Green	Yellow
4	Colour of flower	Violet	White
5	Shape of seed	Round	Wrinkled
6	Shape of pod	Inflated	Constricted
7	Position of flower	Axial	Terminal

13. Option (3) - T_1

14. Option (1)

Explanation : Sodium carbonate reacts with excess hydrochloric acid to form sodium chloride, water and carbon dioxide. In this reaction, bubbles of carbon dioxide are observed.

15. Option (2)

If both assertion and reason are true but Reason is not the correct explanation of assertion.

OR

Option (1)

If both assertion and reason are true and Reason is the correct explanation of assertion.

16. Option (1)

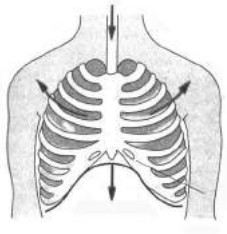
17. (a) Option (4)
both (2) and (3)

(b) Option (2)
From X to Y ribs move upward and outward whereas from Y to Z ribs move downward and inward.

(c) Option (1)
End of expiration and beginning of inspiration

(d) Option (1)
They are exhaled.

(e) Option (1)



16. Option (1)

18. (a) Option (4)
The atomic symbol of diamond is C.

(b) Option (2)
Graphite is mixed with clay or finely powdered sand and then moulded to form pencil leads.

(c) Option (2)
Diamond is not used as a dry lubricant

(d) Option (4)
Graphite is a good conductor of electricity. Also it does not react with acids or alkalis. Thus it is used for making electrodes for electrolytic cells.

(e) Option (1)
In diamond each carbon atom is covalently bonded to four other carbon atoms in a tetrahedral arrangement.

19. (a) Option (3)

(b) Option (2)

(c) Option (2)

(d) Option (2)

(e) Option (1)

20. (a) Option (2)

(b) Option (3)

(c) Option (3)

(d) Option (3)

(e) Option (4)

SECTION-B

21. (a) (i) Ants — Formic acid
(ii) Lemon — Citric acid
(iii) Milk — Lactic acid
(iv) Tomato — Oxalic acid

(b) Sodium sulphate
Sodium Nitrate

OR

(i) B is sodium hydroxide (NaOH).

(ii) Neutralisation rection occurs when B is treated with an acidic oxide.

(iii) $2NaOH + CO_2 \longrightarrow Na_2CO_3 + H_2O$

(B) Carbon dioxide Sodium Water
Sodium (Acidic oxide) carbonate
hydroxide (Salt)

22. White silver chloride turns grey in sunlight

$2AgCl \xrightarrow{\text{sunlight}} 2Ag + Cl_2$

photolytic decomposition

23. Functions of lymph (any two)

(i) It takes up excess fluid that has diffused out from the blood capillaries and puts it into blood.

(ii) It has lymphocytes which fight against germs and bacteria and produce antibodies to fight against infections.

(iii) It absorbs and carries digested fats from the intestine. Serve as a middle man between blood and body.

OR

Functions of blood (any two)

(i) Transportation of oxygen from lungs to tissues.

(ii) Transportation of carbon dioxide from the tissues to the lungs.

(iii) Transportation of excretory materials from the tissues to the kidneys.

(iv) Transportation of digested food from the small intestine to the tissues.

(v) Distribution of hormones and enzymes.

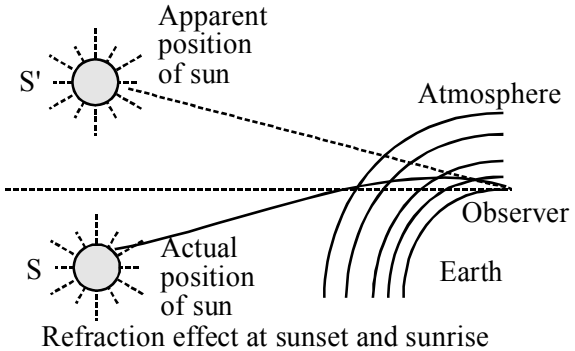
(vi) Formation of clots to prevent blood loss.

(vii) Distribution of heat and temperature control.

(viii) Prevention from infections and helps in wound healing.

24. Fertilization is the process of fusion of the male and female gametes to form a diploid zygote. Oviducts are the sites of fertilization of male and female gametes in a human female.

25. Advanced sunrise and delayed sunset The figure below shows the actual position of the sun S at the time of sunrise andS'the apparent position of sun. The advanced sunrise and delayed sunset is because of atmospheric refraction.



Refraction effect at sunset and sunrise

The light rays starting from the Sun travel from rarer to denser layers. They bend more and more towards the normal.

However, an observer on earth sees an object in the direction of the rays reaching his eyes. The Sun which is actually in a position S below the horizon, appears in the position S' above the horizon for him. Thus, the Sun appears to rise early by about 2 minutes and set late by about 2 minutes. This increases the length of the day by about 4 minutes.

26. (a) Slope $\frac{V}{I}$ = Resistance R

As larger resistance represents series combination and smaller resistance the parallel combination. Therefore, V-I graph of greater slope represents series combination and hence it is correctly labelled.

(b) Slope, $\frac{I}{V} = \frac{1}{R}$

As larger resistance represents series combination, so I-V graph of smaller slope represents series combination and hence it is also correctly labelled.

SECTION-C

27. (a) A series of organic compounds having similar structures and similar chemical properties in which the successive members differ in their molecular formula by – CH_2 group.

(b) Compounds having same molecular formula but different structural formulae are known as isomers and the phenomenon of existence of isomers is termed as isomerism.

There are three isomers of pentane _

(i) n - pentane

$(CH_3 - CH_2 - CH_2 - CH_2 - CH_3)$

(ii) iso-pentane

$$(CH_3 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2 - CH_3)$$

(iii) neo-pentane

$$(CH_3 - \underset{\displaystyle CH_3}{\underset{|}{\overset{\displaystyle CH_3}{\overset{|}{C}}}} - CH_3)$$

(c) If two atoms form triple bond with each other each atom shares three electrons

$X \vdots Y$ or $X \equiv Y$

OR

Those reactions in which two different atoms or groups of atoms are exchanged are called double displacement reactions.

Two examples

(1) $BaCl_2(aq) + Na_2SO_4(aq) \rightarrow BaSO_4(s) + 2NaCl(aq)$

(2) $CuSO_{4(aq)} + 2NH_4OH(aq) \rightarrow Cu(OH)_2 \downarrow + (NH_4)_2SO_4(aq)$

28. In the reaction

$2Cu_{(s)} + O_{2(g)} \longrightarrow 2CuO(s)$

(i) Cu is oxidised as it is gaining oxygen.

(ii) Oxygen is reduced as in product, copper is added to it.

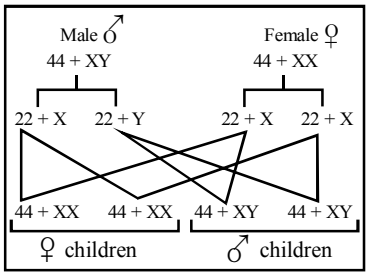
(iii) Oxygen is oxidant or oxidising agent as it oxidises copper.

29. (a) Alkali metals belong to first group of the periodic table.

(b) (i) Magnesium is a metal as it loses electron to form Mg^{2+} ion.

(ii) Its size decreases as we move from left to right in a period in periodic table.

30.



Sex determination

During gamete formation the male produce two types of gametes i.e. one having X chromosome and other having Y chromosome while both gametes produced by females are alike i.e. each having X chromosome.

When X chromosome of male fuses to X chromosome of female, girl child is born.

When Y chromosome of male fuses to X chromosome of female, boy child is born.

31. Methods to reduce the problem of waste disposal are :

(i) By minimizing the use of non-biodegradable substances.

(ii) By following the principle of 3R's-reducing, reusing and recycling.

(iii)By segregating and disposing biodegradable and non-biodegradable substances separately.

OR

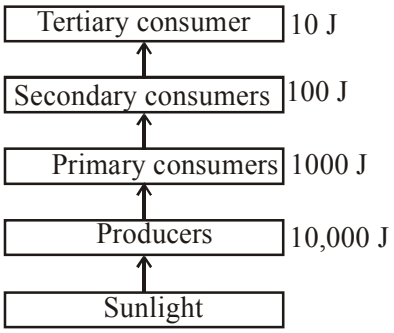
An ecosystem can be defined as a functional unit of nature, where living organisms interact among themselves and with the surrounding physical environment.

Diagram to show the flow of energy in an ecosystem : The ultimate source of entire energy, used by living organisms, is the Sun.

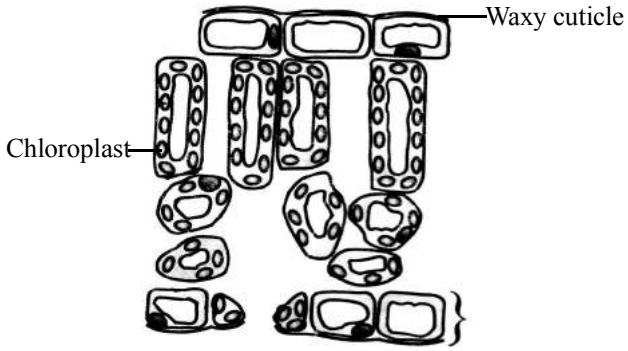
In a community, each food chain, in fact, represents stepwise transfer of food (energy).

Of the total solar radiations falling on the earth, only about 1% are captured by green plants in a terrestrial ecosystem and converted into food energy by photosynthesis. This energy is stored as chemical energy of food.

According to 10 percent law given by Lindeman if, 10,000 J of energy is available to the producers, then 1000 J will be available to the primary consumers, 100 J will be available to secondary consumers and 10 J will be available to tertiary consumers.



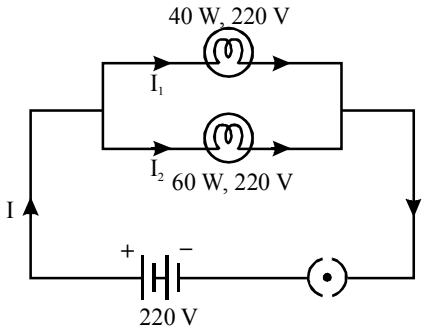
32. (a)



Cross section of leaf

(b) Desert plants take up CO2 at night and prepare an intermediate which is acted upon by the energy absorbed by the chlorophyll during the day and form glucose.

33. (i)



(ii) Current drawn by 40 W bulb,

$$I_1 = \frac{P}{V} = \frac{40}{220} A = \frac{2}{11} A = 0.18 \text{ A}$$

Current drawn by 60 W bulb,

$$I_2 = \frac{P}{V} = \frac{60}{220} = \frac{3}{11} A = 0.27 \text{ A}$$

Total current drawn from circuit,

$I = I_1 + I_2 = 0.18 \text{ A} + 0.27 \text{ A} = 0.45 \text{ A}$

(iii) Energy consumed by 40 W bulb in 1 hour

$= P \times t = 40 \text{ W} \times 1 \text{ h} = 40 \text{ Wh}$

Energy consumed by 60 W bulb in 1 hour

$= 60 \text{ W} \times 1 \text{ h} = 60 \text{ Wh}$

$\therefore$ Total energy consumed = 40 Wh + 60 Wh

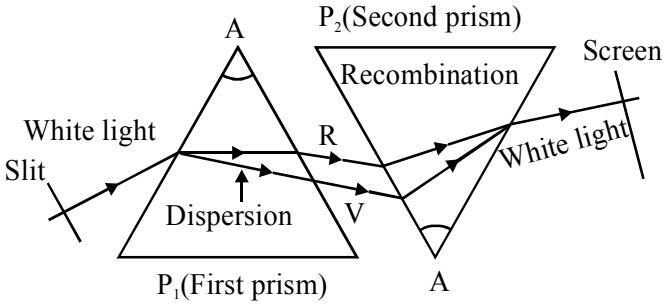
= 100 Wh = 0.1 kWh

OR

Light rays of different colours travel with the same speed in vacuum and air. But in any other medium, they travel with the different speeds and bend through the different angles, which leads to the dispersion of light.

Newton showed that the reverse of dispersion of light is also possible. He kept two prisms close to each other; one in erect position and the other in an inverted position. The light gets dispersed when it passes through the first prism. The second prism receives all the seven coloured rays from first prism and recombines them into the original white light. This observation shows that sunlight is made up of seven colours.

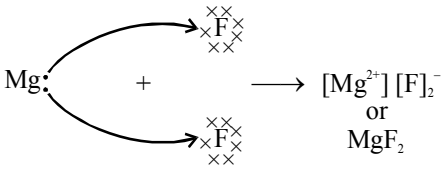
Any light that gives spectrum similar to that of sunlight is called white light.



Recombination of the spectrum of white light

SECTION-D

34. (a) The atomic number of magnesium is 12 and its electronic configuration is 2, 8, 2.
The atomic number of fluorine is 9 and its electronic configuration is 2, 7.



(b) (i) Ionic compounds are generally solids.
(ii) They impart a characteristic colour to the flame.
(iii) They are soluble in polar solvent like water and insoluble in non-polar solvents like kerosene, petrol etc.
(iv) Their molten or aqueous solution conduct electricity.

OR

(a) Chemically, bleaching powder is generally represented by the formula, $CaOCl_2$ (called, calcium oxychloride).

We know that chlorine is produced during the electrolysis of aqueous sodium chloride **(brine)**. This chlorine gas is used for the manufacture of bleaching powder. Bleaching powder is produced by the action of chlorine on dry slaked lime [$Ca(OH)_2$]. Bleaching powder is represented as $CaOCl_2$, though the actual composition is quite complex.

$Ca(OH)_2 + Cl_2 \longrightarrow CaOCl_2 + H_2O$

Slaked lime Bleaching powder

The solution is milky because some unreacted lime is still present. The plant generally used for the manufacture of bleaching powder is known as **'Hasenclever's plant'**.

(b) **Uses of bleaching powder**

(a) For bleaching cotton and linen in the textile industry, for bleaching wood pulp in paper factories and for bleaching washed clothes inlaundry.
(b) As an oxidising agent in many chemical industries.
(c) For disinfecting drinking water to make it free of germs.
(d) In rendering wool unshrinkable.
(e) In the manufacture of chloroform.
(f) In laundry for bleaching washed clothes.

35. (a) 1. Pollen grain 2. Stigma 3. Style
4. Pollen tube 5. Ovary 6. Egg cell

(b) Differences between pollination & fertilization

Differences between pollination and fertilization	
Pollination	Fertilization
Transfer of pollen grains from anther to stigma.	Fusion of male and female gametes.
It does not ensure formation of zygote.	It ensures formation of zygote and further development
It does not initiate fruit formation.	After fertilization ovary develops into fruits.
There are many agents of pollination.	Fertilization is always same in all plants.

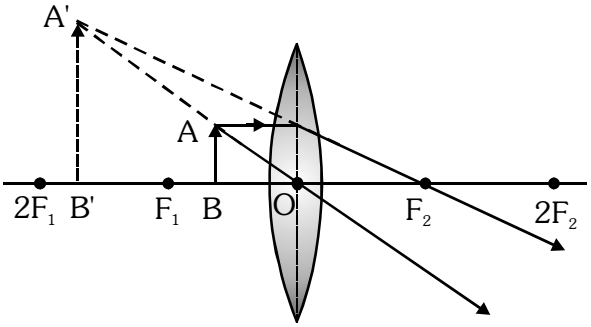
OR

(a) 1. Anther 2. Filament 3. Petal 4. Sepal 5. Stigma 6. Carpel.

(b) (i)

Characters	**Self pollination**	**Cross pollination**
Occurrence	Occurs within a flower or in between two flowers of the same plant.	Occurs between two flowers of two different plants of the same species.
Agent of pollination	Usually no external agent of pollination is required.	External agents such as wind, water, insects and birds are required.
Production of pollen	Produced in small numbers, thus no wastage of pollen grains occurs.	Produced in large numbers thus, wastage of pollen grains occurs.
Nature of offsprings produced	Offsprings produced have genetic makeup with little variation from the parent plant.	Offsprings produced differ more in genetic make-up and variations occur.

36. (i) The formation of image by a convex lens when an object is placed in front of the lens between its optical centre and principal focus.



(ii) Object distance u = BO (negative)
Image distance v = B'O (negative)
Focal length OF_2 (Positive)

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

(iii) As the magnification of is –1, the size of image of formed is equal to the size of the object. Thus, the object is placed at $2F_1$ in front of the convex lens.
According to the equation
$2F_1$ = 20 cm
Thus, focal length (f) = 10 cm = 0.1 m

Now, Power = $\frac{1}{f} = \frac{1}{0.1}$ = + 10 Diopter