Practice Questions
Session 2022-23
Class X
Subject - Science (086)

Maximum marks: 80 Time Allowed: 3 hours

General instructions:

i. *This question paper consists of 39 questions in 5 sections.*
ii. *All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.*
iii. ***Section A** consists of 20 objective type questions carrying 1 mark each.*
iv. ***Section B** consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.*
v. ***Section C** consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words.*
vi. ***Section D** consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.*
vii. ***Section E** consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.*

Q.No	Question	Marks
	SECTION A Select and write one most appropriate option out of the four options given for each of the questions 1 – 20	
Q.1	The yellow colour of turmeric changes to red on addition of soap solution. When substance P is added to turmeric, there is no change in colour. Which of the following is definitely true about substance P? A. P is an acid. B. P is not a salt. C. P is not a base. D. P is a neutral substance.	1
Q.2	During the electrolytic refining of copper what happens at the anode? A. copper ions gain electrons to become neutral copper atoms B. neutral copper atoms gain electrons to become ions C. copper ions lose electrons to become neutral atoms D. neutral copper atoms lose electrons to become ions	1

Q.3	Identify the endothermic reaction(s) among the following: P) $6\ CO_2 + 12\ H_2O \xrightarrow[\text{chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + 6\ O_2 + 6\ H_2O$ Q) $Na_2CO_3 + 2\ HCl \longrightarrow 2\ NaCl + CO_2 + H_2O$ R) $C_6H_{12}O_6 + 6\ O_2 \longrightarrow 6\ CO_2 + 6\ H_2O$ S) $CaCO_3 \dashrightarrow CaO + CO_2$ A. only P B. only S C. only Q and R D. only P and S	1
Q.4	Ashok has written the following reactions to show how metals can be obtained from their ores. P) $2\ Fe_2O_3 + 3C$ --------> $4\ Fe + 3\ CO_2$ Q) $Na_2O + C$ --------> $2\ Na + CO$ R) $ZnO + C$ --------> $Zn + CO$ S) $CuO + C$ ----------> $Cu + CO$ Identify the INCORRECT reaction(s) among them. A. only P B. only Q C. only P and R D. only Q, R or S	1
Q.5	The following reactions are carried out in open vessels. P) $2Cu\ (s) + O_2\ (g) \xrightarrow{\text{Heat}} 2CuO\ (s)$ Q) $Zn\ (s) + CuSO_4\ (aq) \dashrightarrow ZnSO_4\ (aq) + Cu\ (s)$ R) $2FeSO_4\ (s) \xrightarrow{\text{Heat}} Fe_2O_3\ (s) + SO_2\ (g) + SO_3\ (g)$ Which of the following correctly shows if the weight of the reaction vessel and contents increases, decreases or remains the same after the reaction as compared to before the reaction?	1

Option	Reaction P	Reaction Q	Reaction R
A	decreases	remains the same	increases
B	remains the same	increases	decreases
C	increases	decreases	increases
D	increases	remains the same	decreases

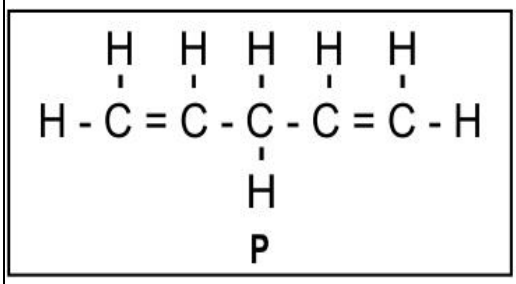
A. A
B. B
C. C
D. D

Q.6 A solution of a base with pH 12.1 is given. 1

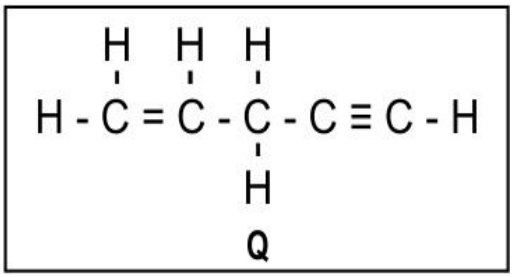
Which of the following can be done to decrease its pH?
P) add distilled water to it
Q) add a solution of a different base with pH 8.7
R) add few drops of an acid with an unknown pH

A. only P
B. only R
C. only P and Q
D. any of P, Q and R

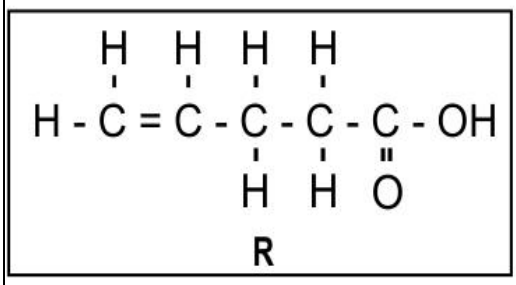
Q.7 One mole of which of the following compounds requires 2 moles of hydrogen to form a saturated hydrocarbon by catalytic hydrogenation? 1



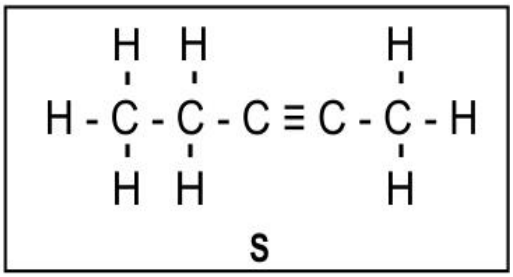
P



Q

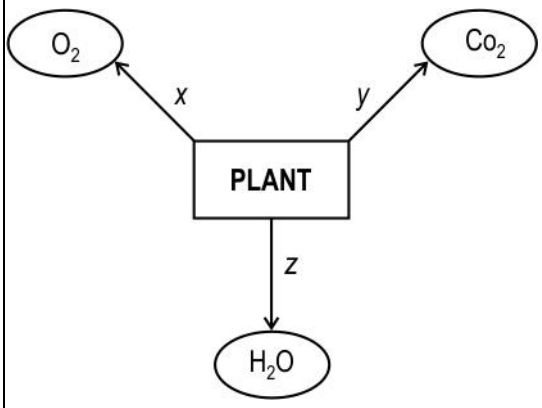
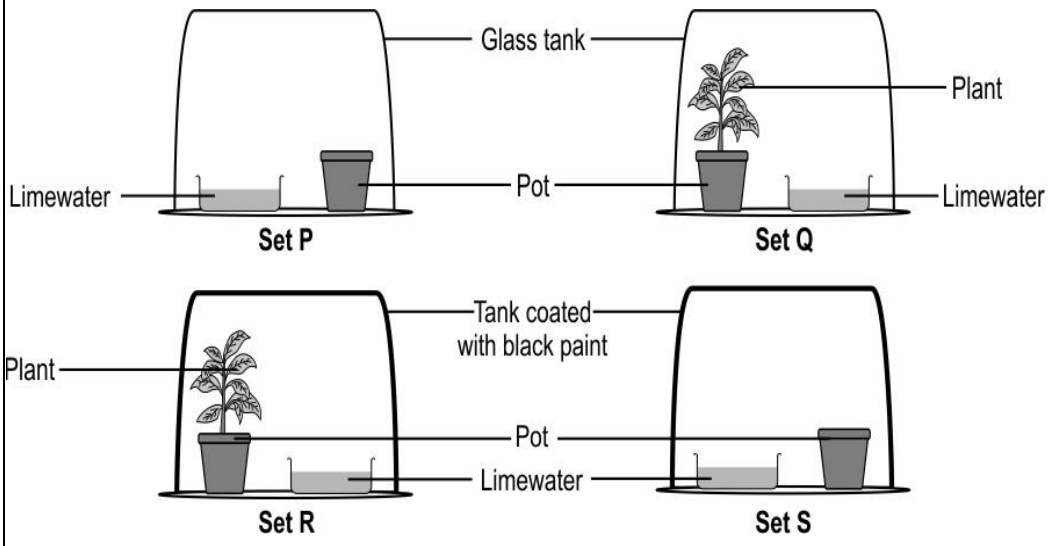


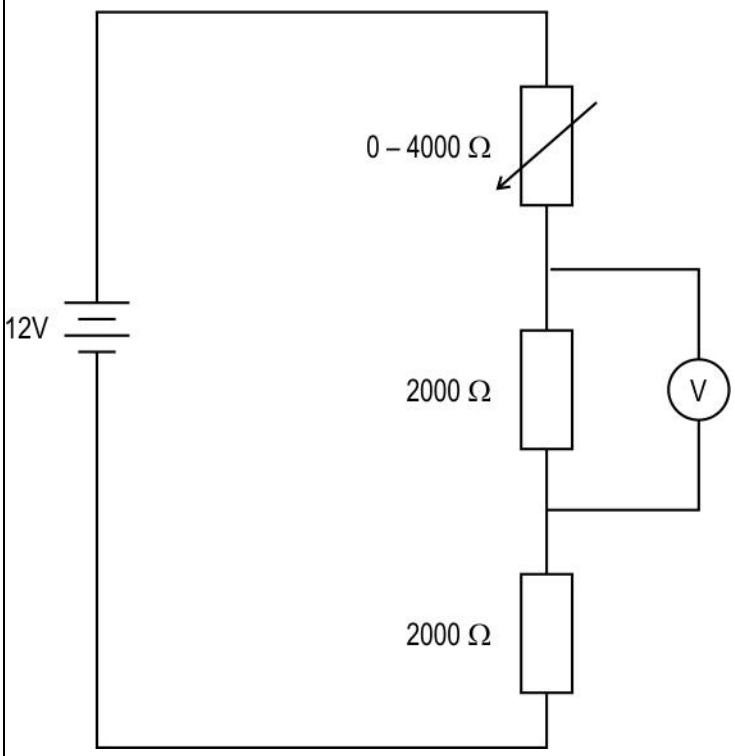
R

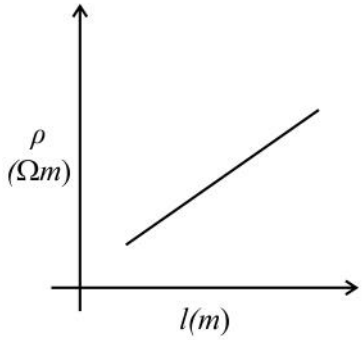
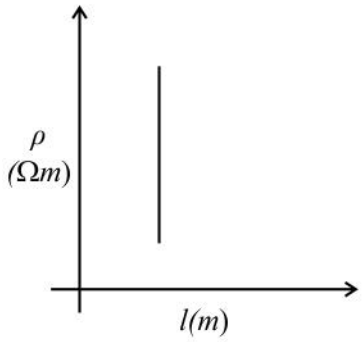
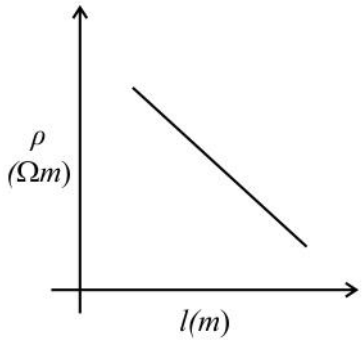


S

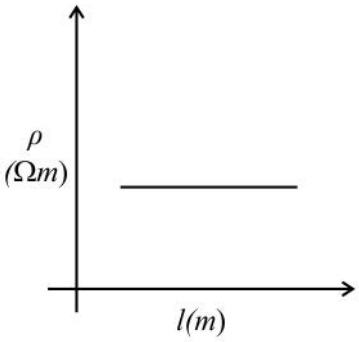
A. only P and Q
B. only R and S
C. only P and S
D. only P, Q and S

Q.8	Look at the diagram below carefully.  Identify the process taking place at Z. A. Reproduction B. Transpiration C. Photosynthesis D. Translocation	1
Q.9	Lime water turns cloudy in the presence of a gas which is a by-product of respiration. Shown below are four setups kept in sunlight for 24 hours.  In which setup is lime water expected to be the cloudiest? A. Setup P B. Setup Q C. Setup R D. Setup S	1
Q.10	A homozygous dominant guinea pig with black fur is crossed with a homozygous guinea pig with white fur. The F1 generation is crossed with itself. What percentage of F2 generation is expected to show white fur coat?	1

	A. 25% B. 50% C. 75% D. 100%	
Q.11	Person X suffers from a condition that affects the normal functioning of the pituitary gland. Which of the following is most likely a direct effect of person X's condition? A. insufficiency of iodine B. irregular heartbeat C. insufficient growth of the body D. inability to regulate blood sugar	1
Q.12	The time duration from the sowing of seeds to the harvest of crops is critical for agricultural purposes. Based on the information above, select a reason why farmers prefer vegetative propagation for growing crops. A. Seedless crops can also be reproduced. B. Offspring plants are genetically similar to parent plants. C. Plants grown by vegetative propagation bear fruits earlier. D. Vegetative propagation does not depend on external agents of pollination.	1
Q.13	The circuit below consists of a variable resistor connected in series with two 2000 Ω resistors. The variable resistor can be adjusted to any value between 0 - 4000 Ω.  As the resistance of the variable resistor is changed, what is the smallest possible reading on the voltmeter?	1

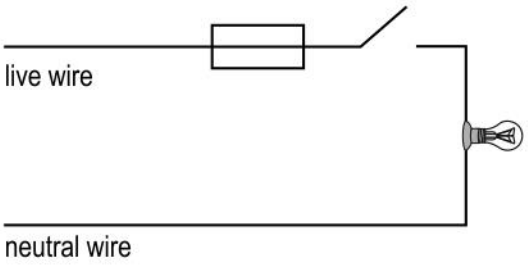
	A. 0 V B. 3 V C. 4 V D. 6 V	
Q.14	The frequency of AC in some countries is 60 Hz. What does this mean? A. The current changes direction 60 times in a second. B. The current changes direction 120 times in a second. C. The current changes direction after every 60 seconds. D. The current changes direction after every 120 seconds.	1
Q.15	Raman wants to draw a graph to show how the resistivity (ρ) of a wire changes with the length (l) of the wire. What should his graph look like? A.  B.  C.  	1

D.

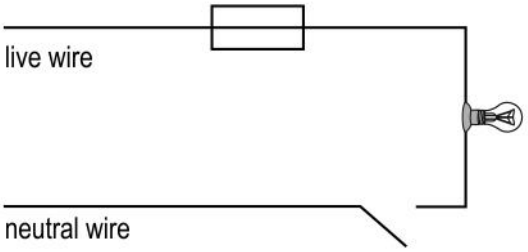


Q.16 Which circuit shows the correct and safe positions for the fuse and the switch? 1

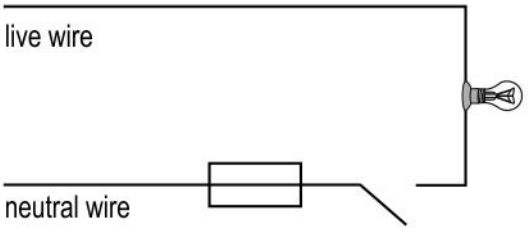
A.



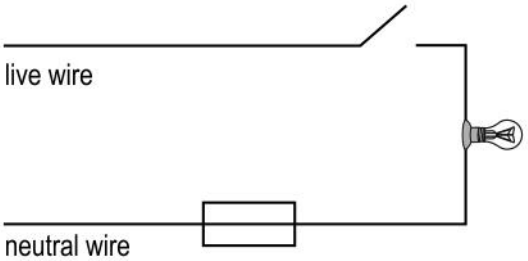
B.



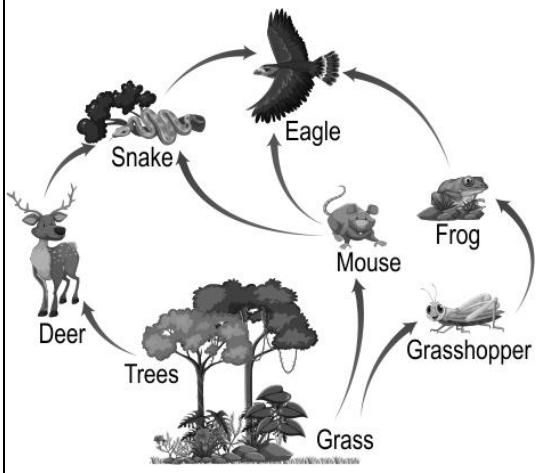
C.

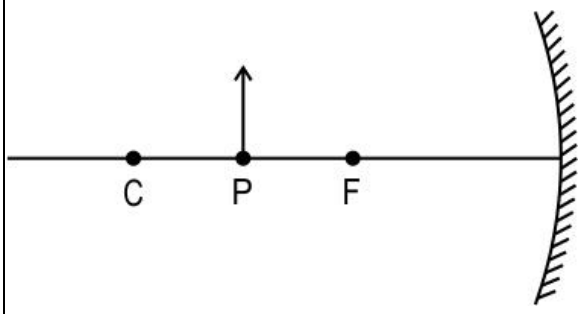


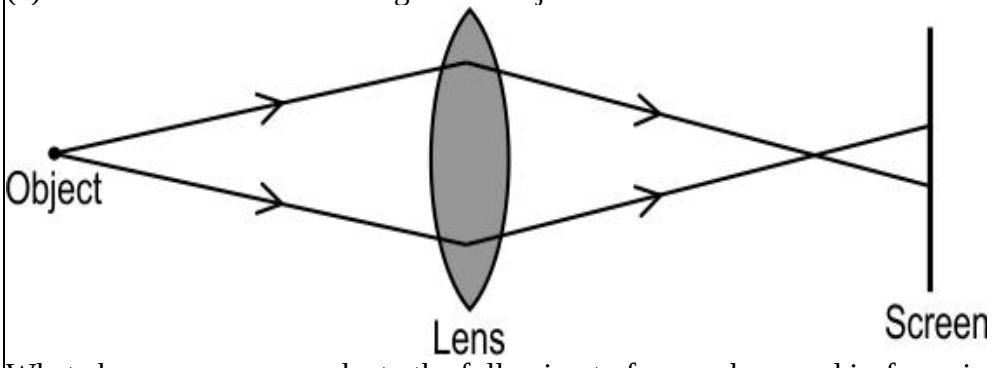
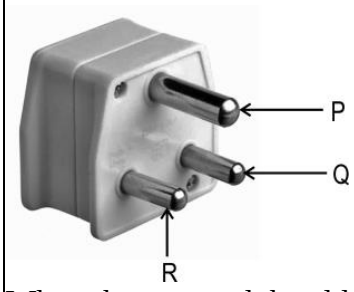
D.

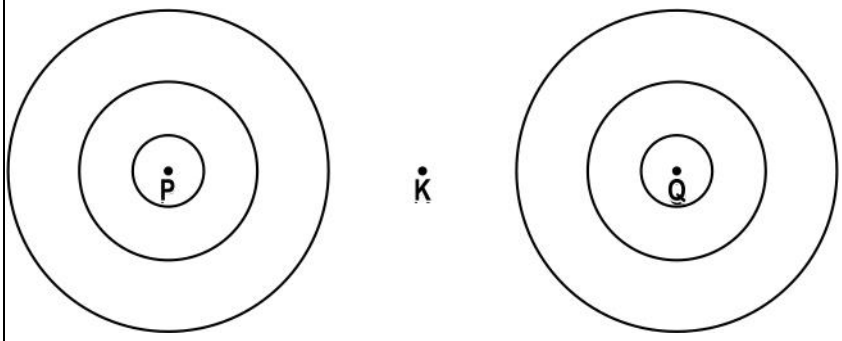


Q. no 17 to 20 are Assertion - Reasoning based questions. **These consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:** **(a) Both A and R are true and R is the correct explanation of A** **(b) Both A and R are true and R is not the correct explanation of A** **(c) A is true but R is false** **(d) A is False but R is true**		
Q.17	Assertion (A): A white washed wall develops a coating of calcium carbonate after a few days. Reason (R): Calcium oxide on the wall reacts slowly with carbon dioxide in the air.	1
Q.18	Assertion (A): Offsprings produced by sexual reproduction show variation. Reason (R): Each offspring produced by sexual reproduction inherits all the genes from each parent.	1
Q.19	Assertion (A): Capillaries have walls that are just one cell thick. Reason (R): Exchange of material between the blood and surrounding cells takes place across the capillaries.	1
Q.20	Assertion (A): A stationary charged particle placed in a magnetic field experiences a force. Reason (R): A stationary charged particle does not produce a magnetic field.	1
	SECTION B Q. no. 21 to 26 are very short answer questions.	
Q.21	Diana prepared a cake by two methods. Method i) She added baking soda to the cake mixture and let the mixture stand for one hour before placing it in the oven to bake. Method ii) She added baking powder to the cake mixture and let the mixture stand for one hour before placing it in the oven to bake. State the difference in the cake mixtures that Diana is likely to have observed before baking. Explain why. **OR** Compare the stability of a neutral sodium atom and a positive sodium ion. Justify your answer.	2
Q.22	How do control and coordination in plants differ from that in animals? Give any FOUR points of difference.	2
Q.23	A person suffering from liver disease is advised to avoid fatty and highly acidic foods. Give a reason why each of the foods mentioned should be avoided by a person suffering from liver disease.	2
Q.24	Oxygen, mostly, is carried by a pigment in our blood whereas carbon dioxide is transported in dissolved form in our blood. Give TWO reasons that make the above statement correct.	2

Q.25	White light is passed through a prism to yield a spectrum. (a) The ray of which color will show the maximum angle of deviation and which one will show the least angle of deviation? (b) A blue-coloured ray is passed through a glass prism. What will be the colour of the emergent ray? Justify your answer. **OR** Myopia is also known as near-sightedness. A person with this defect has the far point nearer than infinity. Draw a neat ray diagram to depict image correction for a myopic eye using a suitable lens.	2
Q.26	Study the food web shown below.  (a) Identify and write the food chain from the food web shown, in which the eagle will receive the highest percentage of the energy from the producers. (b) Which organism will be the most affected when a non-biodegradable pesticide is introduced into the soil? What is the phenomenon responsible for this called?	2
	SECTION C Q.no. 27 to 33 are short answer questions.	
Q.27	Observe the two chemical equations given below. P) $Ca(OH)_2 + HNO_3$ -----> $Ca(NO_3)_2 + H_2O$ Q) $KBr + AgNO_3$ -----> $KNO_3 + AgBr$ (a) Explain how a balanced equation can be identified. (b) Which of the two equations is/are NOT balanced? Balance the equation(s) by rewriting.	3
Q.28	The Thermit process is used for repairing cracks in railway tracks on site. (a) Write the equation for the reaction taking place in the process, mentioning the physical states of the reactants and products. (b) What information in the chemical equation indicates that the reaction is exothermic?	3

Q.29	Given below is a table representing the characteristics of two fluids involved in the transportation of substances in the human body. **Fluid A** | **Fluid B** colourless | coloured contains less oxygen | contains more oxygen contains less protein | contains more protein (a) Identify fluid A and fluid B. (b) With the help of a flow chart, describe the movement of fluid A from the intercellular spaces to the main circulatory system. (c) What role does fluid A play in the digestion of food in humans? **OR** Two major forces help in the transport of water in a plant. Force A is the driving force in the movement of water during the day, whereas force B helps the movement of water in a plant during the night or during the day when humidity is very high. (a) Identify force A and force B. (b) Describe how each of these forces helps in the movement of water in a plant.	3
Q.30	An object of height h is kept at point P in front of a mirror as shown below. The height of the image produced is h'. In the diagram, F is the focus and C is the centre of curvature.  (a) If the object is now moved to point C, will the height of the image now produced be less than, equal to, or greater than h'? Give a reason for your answer. (b) If the focal length of the mirror is 20 cm and the distance between points P and C is 10 cm, determine the distance between the images produced when the object is kept at P and C.	3

Q.31	(a) A lens forms a blurred image of an object on the screen as shown below:  What changes can you make to the following to form a sharp and in-focus image on the screen? (i) object distance (ii) focal length of the lens (b) Sunita's ophthalmologist suggests her to use a lens of power -2 D to correct her vision. (i) What type of lens should she use? (ii) What should be the focal length of the lens? (iii) An object is kept at 10 cm in front of the lens of power -2 D. Find the distance where the image is produced.	3
Q.32	Sunita had to replace the electrical plug of her clothes iron. She bought a three-pin plug as shown below.  When she removed the old plug, she saw that there were three wires coloured red, black and green. (a) To which pin on the plug should she connect the green wire? (b) To which part of the clothes iron is the green wire connected? (c) State the function of the green wire. **OR** (a) Direct contact between which of the three coloured wires will result in a short circuit? (b) State what happens to the current in the circuit in the case of a short circuit. Give a reason for your answer.	3
Q.33	Ozone formation takes place in the stratosphere of our atmosphere. (a) Explain how the energy of the Sun helps in the formation of ozone. (b) Why is ozone formation at ground level considered a pollutant? (c) State any two health consequences of ozone layer depletion on human health.	3

	SECTION D Q.no. 24 to 36 are long answer questions.	
Q.34	Prasad has a saturated alcohol X of chemical formula C_4H_9OH. (a) Write the chemical formula of a member Y that comes two places after X in the homologous series and state by how much will its molecular mass differ from that of X. (b) How do the chemical properties of X compare with those of Y? Give reason for your answer. (c) Write the chemical formula of the product Z formed by heating Y with acidified potassium dichromate. Write the general formula for compounds in the homologous series that Z belongs to. **OR** An unsaturated hydrocarbon P has the chemical formula C_4H_6. (a) Write two possible structural formulae for hydrocarbon P. (b) Write the reaction conditions to convert 1-butanol (CH_3 - CH_2 - CH_2 - CH_2OH) to hydrocarbon P. (c) Write the general formula for the homologous series of hydrocarbon P.	5
Q.35	(a) Variation in DNA is beneficial for the survival of species over time. Explain. (b) Explain an instance where reproduction would be counterproductive to the sustenance of species. (c) What is the sequence of events that take place in human reproduction when an egg is not fertilised? **OR** (a) Describe the process of seed formation in a flowering plant. (b) Suggest any two reasons why child marriages are a hazard to the reproductive health of women. (c) Give any three advantages of using a mechanical barrier over other contraceptive measures to avoid pregnancy.	5
Q.36	P and Q represent two straight wires carrying equal current (I) in a direction perpendicular to the plane of the screen **outwards**. K is the midpoint of the line joining P and Q. The image shows the magnetic field lines around the wire. But the direction of the magnetic field is not marked.  (a) Draw the above image and mark the direction of the magnetic field.	5

(b) If the current in the wires is increased, how will the strength of the magnetic field around P and Q change? Draw the magnetic field lines around P and Q to represent this change.

(c) If B is the magnetic field at point K due to the current in wire P, what will be the magnetic field due to P and Q at the midpoint K? Give a reason for your answer.

(d) If B is the magnetic field at point K due to the current in wire P and the current in wire Q is reversed, what will be the magnetic field at midpoint K?

SECTION E

Q.no. 37 to 39 are case - based/data -based questions with 2 to 3 short sub - parts. Internal choice is provided in one of these sub-parts.

Q.37 Pure gold is very soft and therefore not suitable for making jewellery. To make it hard, gold is alloyed with other metals. The purity of gold is measured in carats according to the table below. Carat number is the number of parts of gold in 24 parts. [4]

Carat number	**Number of parts of gold in 24 parts**	**Number of parts of other metals in 24 parts**
24	24	0
22	22	2
18	18	6
14	14	10
12	12	12

(a) What is the percentage of gold in 18 carat gold? Name any two metals that are used to make 22 carat gold.
(b) Like gold, pure iron is also comparatively soft and also undergoes rusting. Name the substance that is mixed with iron.

(i) to make it hard.
(ii) to change it to stainless steel to prevent rusting.

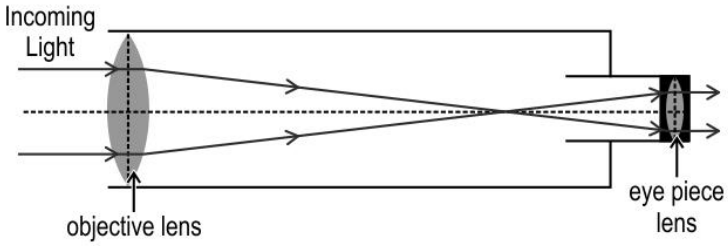
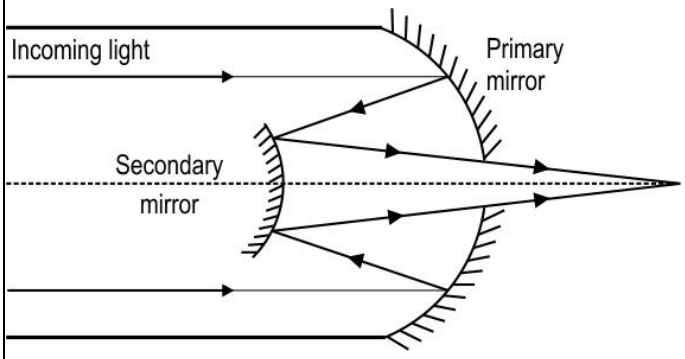
OR

(b) (i) What type of mixture is an alloy?
(ii) How does the electrical conductivity of an alloy compare with that of the pure metal?

Q.38 Two human beings who can both roll their tongues produced 11 children. 3 of these children could not roll their tongues and 8 children could roll their tongues. [4]

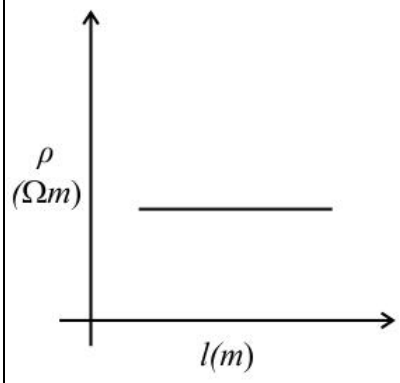
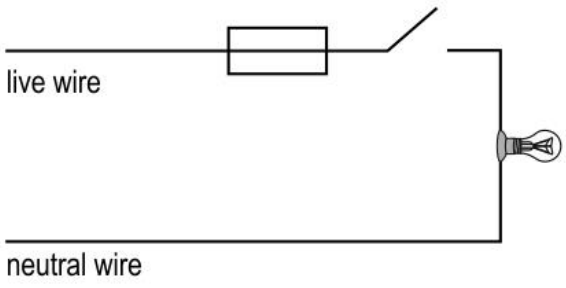
(a) Which trait (rolling or not rolling) is controlled by the recessive allele?
(b) State all possible genotypes of the F1 generation of the cross.
(c) Show the inheritance of the tongue rolling in humans in the given example using a suitable cross. What percentage of offspring will show the same genotype as the parents?

OR

	(c) If one of the parents could not roll their tongue, with the help of a cross, calculate the ratio of tongue-rollers to non-tongue-rollers in the off springs.	
Q.39	The image below shows the design of a refracting telescope.  When light passes through a prism different colours split and dispersion takes place. The same thing happens with a lens but to a much lesser degree. This is called chromatic aberration and causes the different colours of light to focus at different points. To overcome this problem, the reflecting telescope was invented. One design of the reflecting telescope is shown below.  (a) Why is there no chromatic aberration in reflecting telescopes? (b) One of the critical factors affecting a telescope is the amount of light it can gather. The more light a telescope can gather, the better the image it produces. What can be done to the lens to increase the amount of light a telescope gathers? (c) In the refracting telescope given in the passage, what should be the distance between the two lenses? (Use the first ray diagram in the passage to answer it.) (d) The light that reaches the telescopes comes from very far away celestial objects. Draw a ray diagram to show what happens when light from a far away object falls on a convex lens and a concave lens. **OR** (d)The light that reaches the telescopes comes from very far away celestial objects. Draw a ray diagram to show what happens when light from a far away object falls on a convex mirror and a concave mirror.	4

Practice Questions - MARKING SCHEME

Session 2022-23
Class X
Subject - Science (086)

Q.No	Question	Marks
	SECTION A	
Q.1	C. P is not a base.	1
Q.2	D. neutral copper atoms lose electrons to become ions	1
Q.3	D. only P and S	1
Q.4	B. only Q	1
Q.5	D. D	1
Q.6	D. any of P, Q and R	1
Q.7	C. only P and S	1
Q.8	B. Transpiration	1
Q.9	C. Setup R	1
Q.10	A. 25%	1
Q.11	C. insufficient growth of the body	1
Q.12	C. Plants grown by vegetative propagation bear fruits earlier.	1
Q.13	B. 3 V	1
Q.14	B. The current changes direction 120 times in a second.	1
Q.15	D. 	1
Q.16	A. 	1
Q.17	C. A is true but R is false.	1
Q.18	C. A is true, but R is false.	1
Q.19	A. Both A and R are true, and R is the correct explanation of A.	1

<table>
<tr><td>Q.20</td><td>D. A is false but R is true.</td><td>1</td></tr>
<tr><td colspan="3">SECTION B</td></tr>
<tr><td>Q.21</td><td>Diana is likely to see that the cake mixture (ii) has risen while cake mixture (i) has not.
1 mark for each of the following:

- The sodium bicarbonate and tartaric acid in baking powder react on mixing with one another, producing carbon dioxide that causes the cake mixture to rise.

- Baking soda does not contain tartaric acid and hence does not produce carbon dioxide before baking.

OR

1 mark for each of the following:

A positive sodium is more stable than a neutral sodium atom.
A positive sodium ion has a complete octet of electrons in its penultimate shell.</td><td>2</td></tr>
<tr><td>Q.22</td><td>0.5 marks for each point of difference:

<table><tr><th>Control in plants</th><th>Control in animals</th></tr><tr><td>Plant hormones diffuse to the place of action.</td><td>Animal hormones are carried in blood vessels.</td></tr><tr><td>Plants depend on hormones for control and coordination.</td><td>Animals depend on nerve impulses and hormones for control and coordination.</td></tr><tr><td>Hormones in plants are not secreted by specialised glands.</td><td>Hormones in animals are secreted by specialised glands.</td></tr><tr><td>Movement in plants occurs through a change in the water content of the action cells.</td><td>Movement in animals occurs through a change in the shape and arrangement of proteins in the muscle cells.</td></tr></table>(Accept any other valid point of difference.)</td><td>2</td></tr>
<tr><td>Q.23</td><td>1 mark for each correct description/explanation:

- Since the liver produces bile which creates an alkaline medium for effective digestion, in absence of bile acidic foods may cause more acidity and poor digestion.

- Since bile is responsible for fat digestion by converting large fat globules to smaller ones for efficient digestion, in absence of which fats will not be properly digested.

(Accept any other valid answer.)</td><td>2</td></tr>
<tr><td>Q.24</td><td>1 mark for each correct reason:

- Carbon dioxide is more soluble in water than oxygen.

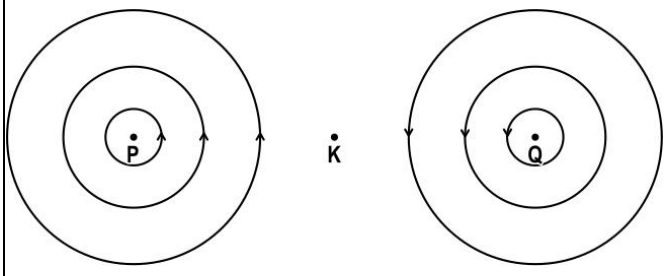
- Haemoglobin (the red pigment in RBC) has a very high affinity for oxygen.</td><td>2</td></tr>
</table>

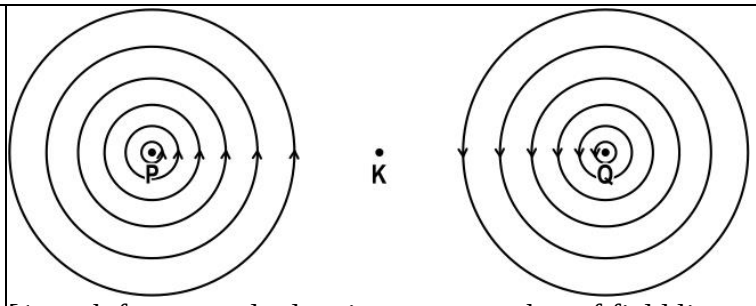
Q.25	(a) 0.5 marks for each correct answer: - maximum angle of deviation - violet colour ray - minimum angle of deviation - red colour ray (b) 0.5 marks each for both correct points: - The emergent ray will be blue in colour. - Since blue colour ray cannot be split any further it will pass through the prism undispersed. **OR** Neat diagram drawn with the following components marked: - light rays coming from infinity [0.5 marks] - concave lens in front of the eye [0.5 marks] - lens of the eye [0.5 marks] - image formed on retina [0.5 marks] (No marks are to be awarded for incomplete diagram.)	2
Q.26	(a) Grass --> Mouse --> Eagle [1 mark] (No marks to be given for incomplete food chain.) (b) 0.5 marks each for both correct points: - The eagle will be the most affected. - Biomagnification.	2
	SECTION C	
Q.27	(a) The number of atoms of each element should be the same on the reactants' side and the products' side. (b) P [1 mark] Balanced equation: $Ca(OH)_2 + 2\ HNO_3$ -----> $Ca(NO_3)_2 + 2\ H_2O$ [1 mark]	3
Q.28	(a) 0.5 marks each for writing the correct formulae and physical state of the reactants and products: $2Al\ (s) + Fe_2O_3\ (s)$ ----> $2\ Fe\ (l) + Al_2O_3\ (s)$ [2marks] (Note: (i) balancing of the equation is not required. (ii) no marks to be awarded if the state or formula of the reactant/product is incorrect) (b) The iron formed is in the molten(liquid) state due to the heat generated in the reaction. [1 mark]	3
Q.29	(a) 0.5 marks for each correct answer: - Fluid A - Lymph - Fluid B – Blood	3

	(b) 0.5 marks for all four nodes stated correctly, 0.5 marks for the correct direction of arrows: intercellular spaces --> lymphatic capillaries --> lymph vessels --> larger veins [1 mark] (c) Lymph carries digested and absorbed fat from the intestines back to the blood. [1 mark] **OR** (a) 0.5 marks for each correct answer: - force A: transpirational pull - force B: root pressure (b) 1 mark for each correct point: - Transpirational pull: evaporation of water molecules from the stomata of a leaf due to transpiration creates a suction that pulls water from the xylem cells of roots. - Root pressure: Active absorption of ions by roots from the soil causes water to steadily move into the root xylem creating a column of water that is pushed upwards.	
Q.30	(a) The height of the image produced when the object is at C will be less than h'. The magnification is more when the object is at point P than at C. (1 mark for the correct answer.) (b) To find the distance between the two images we need to find the image distance when the object is at P and when it is at C. To find the image distance when the object is at P: u = -30 cm f = -20 cm Using mirror formula v_1 = -60 cm (1 mark for finding v_1.) To find the image distance when the object is at C: Since C is the centre of curvature, image distance = object distance (i.e.) v_2 = -40 cm (0.5 marks for finding v_2.) Distance between the images = $\|v_2\|$ - $\|v_1\|$ = 60 - 40 = 20 cm (0.5 marks for finding the distance between the images.)	3
Q.31	(a) (i) decrease the object distance (ii) increase the focal length (0.5 marks for each correct answer) (b) (i) diverging lens/ concave lens (0.5 marks) (ii) f = 1/P = 1/(-2) = - 0.5 m	3

	(0.5 marks. No marks are to be allotted if the negative sign and unit is not mentioned.) (iii) Given u = -10 cm; P=-2 D f = -0.5 m = -50 cm $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$ $v = \frac{uf}{u+f}$ $v = \frac{(-10)(-50)}{-10-50}$ $v = -8.33$ cm (0.5 marks for the use of correct formula and 0.5 marks for correct calculation.)	
Q.32	(a) pin P [1 mark] (b) to the metallic body of the clothes iron [1 mark] (c) It prevents severe shocks by providing a low resistance path for any leakage current to the metallic body of the iron. [1 mark] **OR** (a) the red and the black wire [1 mark] (b) there is a drastic increase in the current [1 mark] Reason: The resistance in the circuit decreases. [1 mark]	3
Q.33	(a) 0.5 marks for each correct point: - High energy UV radiation from the Sun breaks apart some of the molecular oxygen into free oxygen. - The free oxygen then combines with the remaining molecular oxygen to form ozone. (b) Ozone is deadly to humans at lower levels of the atmosphere. [1 mark] (c) 0.5 marks each for any two consequences stated below: - skin cancer - cataract (Accept any other valid answer.)	3
	SECTION D	
Q.34	(a) 0.5 marks each for the following: - Y: $C_6H_{13}OH$	5

	- molecular mass of Y = X + 28; (where 28 = atomic wt. of C X 2 + atomic wt. of H X 4 = 12 x 2 + 1 x 4) (b)1 mark each for the following - The chemical properties of X and Y will be similar. - Both X and Y are have an alcoholic functional group which determines their chemical properties. (c) 1 mark each for the following: - chemical formula of Z: $C_5H_{11}COOH$ - $C_nH_{2n+1}COOH$ OR $C_nH_{2n}O_2$. **OR** (a) 1 mark each for any two of the following: $-HC \equiv C - CH_2 - CH_3$ $-H_3C - C \equiv C - CH_3$ $-H_2C = C = CH - CH_3$ $-H_2C = CH - CH = CH_2$ (b) 1 mark each for the following: - concentrated sulphuric acid - heat (c) C_nH_{2n-2}	
Q.35	(a) 1 mark for each correct point: - Variation allows diversity in organisms. - In case of drastic alteration of niches, a population with variation is most likely to have some surviving members to ensure continuity of species. (b) A higher rate of reproduction would lead to unchecked population growth leading to competition for resources and subsequent lower standards of living. [1 mark] (c) 1 mark for each correct point: - The egg survives for a day in the reproductive system. - In case the egg is not fertilised, it is shed along with the lining of the uterus	5

	out of the vagina as blood and mucus. **OR** (a) 0.5 marks for each correct point: - The pollen from the stamen is transferred to the stigma. - The pollen tube germinates and penetrates the style to reach the ovary. - The male germ cell and the female germ cells combine to form the zygote. - The zygote undergoes rapid division to form the embryo inside the ovule. - The ovule develops a seed coat and turns into a seed. (b) 0.5 marks for each correct reason: - Females will not have reached full sexual maturity at the time of marriage. - There are possibilities of pregnancy in the teenage years that may cause adverse effects on the female's body. (Accept any other valid answer.) (c) 0.5 marks for each correct point: - Contraceptive pills can cause hormonal imbalances. - CopperT and IUD can cause irritation to the uterine lining if not placed correctly. - Surgical methods, if not performed properly, can lead to infections and complications. (Accept any other valid answer.)	
Q.36	(a)  [1 mark] (b) The strength of the magnetic field around P and Q will increase. [0.5 mark]	5

	 [1 mark for correctly drawing more number of field lines to indicate a stronger magnetic field.] (c) Zero. [0.5 marks] The magnetic fields at point K due to current in the wires P and Q are equal in magnitude but opposite in direction. The two fields cancel each other. [1 mark] (d) 2B. [1 mark]	
	SECTION E	
Q.37	(a) 1 mark each for the following: - 75% - silver, copper (no marks if only one metal is mentioned) (b) 1 mark each for the following: (i) carbon (ii) nickel and chromium **OR** (b) 1 mark each for the following: - homogeneous - The electrical conductivity of an alloy is less than that of the pure metal.	4
Q.38	(a) not rolling [0.5 marks] (b) 0.5 marks for each correct genotype: - RR Rr, rr (Homozygous dominant, heterozygous dominant, homozygous recessive) (c) 1 mark for correct cross:	4

	R	r
R	RR	Rr
r	Rr	rr

- 50% of the offspring will show the same genotype as the parents. [1 mark]

OR

(c) 1 mark for the correct cross:

	R	r
r	Rr	rr
r	Rr	rr

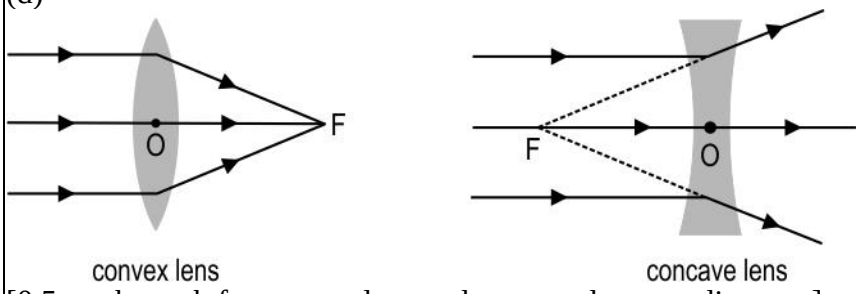
- ratio of tongue roller to non tongue roller offspring = 1:1 [1 mark]

Q.39 (a) Light does NOT pass through a second medium and hence there is no refraction and splitting of colours. [1 mark] — 4

(b) Increase the diameter/aperture of the objective lens/ primary mirror. [1 mark]

(c) equal to the sum of the focal length of the objective and eyepiece. [1 mark]

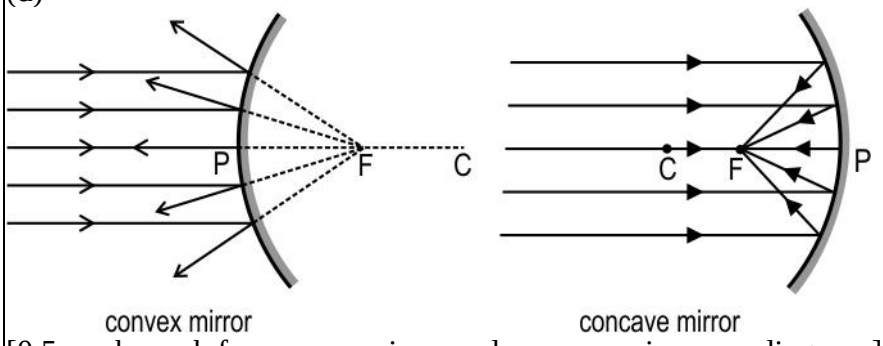
(d)



[0.5 marks each for convex lens and concave lens ray diagram.]

OR

(d)



[0.5 marks each for convex mirror and concave mirror ray diagram.]