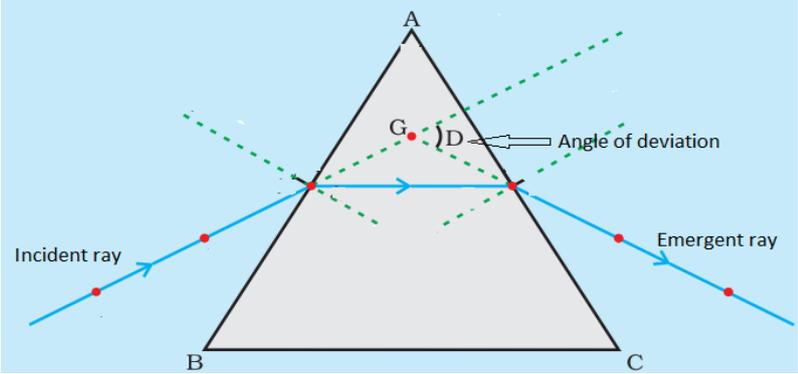
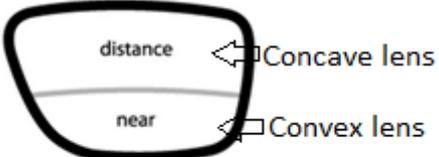


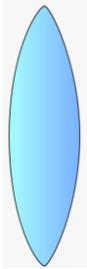
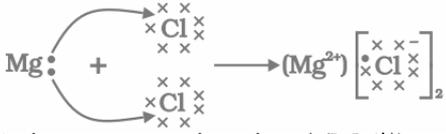
EXAMINATION, 2025
SOLUTIONS
CLASS: X SCIENCE (Subject Code–086)
[Paper Code:31/4/2]

Maximum Marks: 80

Q. No.	EXPECTED ANSWERS / VALUE POINTS	Marks	Total Marks
SECTION A			
1	(c)/ 40cm	1	1
2	(c) /100%; 75%	1	1
3	(c)/ seeds	1	1
4	(d)/ Melting of glaciers	1	1
5	(b)/ ductility	1	1
6	(a)/ Calcium chloride	1	1
7	(d)/ Propyne	1	1
8	(d)/ Both, male and female germ cells.	1	1
9	(b)/ Nitrogen	1	1
10	(b)/ B and D	1	1
11	(c)/ DDT	1	1
12	(c)/ plants -> man	1	1
13	(c)/ glass slab	1	1
14	(d)/ 9	1	1
15	(c)/ 60	1	1
16	(a)/ 4400 Ω	1	1
17	(d) / Assertion (A) is false but Reason (R) is true.	1	1
18	(d) / Assertion (A) is false but Reason (R) is true.	1	1
19	(d) / Assertion (A) is false but Reason (R) is true.	1	1
20	(a) // Both Assertion and Reason are true and Reason (R) is the correct explanation of Assertion (A).	1	1

SECTION B

21	<p>Safety measures:</p> <ul style="list-style-type: none"> • A pair of tongs should be used to hold the magnesium ribbon. • Burn the magnesium ribbon keeping it away from eyes. / protective eye glasses should be worn. <p>Observations:</p> <ul style="list-style-type: none"> • Dazzling white flame is seen. • A white powder or ash is formed. 	<p>$\frac{1}{2} \times 2$</p> <p>$\frac{1}{2} \times 2$</p>	2
22	<p>(A)</p> <div style="text-align: center;">  <p>(one mark for diagram and $\frac{1}{2}$ for labelling.)</p> </div> <ul style="list-style-type: none"> • Angle of deviation <p style="text-align: center;">OR</p> <p>(B)</p> <p>I.</p> <ul style="list-style-type: none"> • Bi-focal lens. • Bi-focal lens having upper portion consists of a concave lens and lower portion consists convex lens. / <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> • to facilitate the distant and near vision respectively. <p>II.</p> <ul style="list-style-type: none"> • convex lens. 	<p>$1\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	

	<ul style="list-style-type: none"> Convex lens is thickened at the middle as compared to edges  <ul style="list-style-type: none"> to facilitate the near vision. <p style="text-align: right;"><i>(either of I or II)</i></p>	1	
		½	2
23	The inner lining of the small intestine has numerous finger-like projections called villi, which increases the surface area for absorption of digested food; The villi are richly supplied with blood vessels; which transport the absorbed food to each and every cell of the body.	2	2
24	<p>(i)</p> <ul style="list-style-type: none"> All tall Tallness is a dominant trait <p>(ii) 1 : 1</p> <p style="text-align: center;">(award marks if explained through a Mendel's cross)</p>	½ ½ 1	2
25	<p>(A)</p>  <ul style="list-style-type: none"> Cation - magnesium ion / (Mg²⁺) Anion - chloride ion / (Cl⁻) <p style="text-align: center;">OR</p> <p>(B)</p> <p>(i) If Zinc is in the form of sulphide ore.</p> <ul style="list-style-type: none"> Roasting $2\text{ZnS} + 3\text{O}_2 \xrightarrow{\text{Heat}} 2\text{ZnO} + 2\text{SO}_2$ <p>- Reduction</p> $\text{ZnO} + \text{C} \xrightarrow{\text{Heat}} \text{Zn} + \text{CO}$ <p style="text-align: center;">OR</p> <p>(ii) If Zinc is in the form of carbonate ore.</p>	1 ½ ½ ½	

	<ul style="list-style-type: none"> • A: Plastic - handle of an electric iron. • B: Nichrome – used as a heating element in an electric iron. • C: Copper - electric wires. <p style="text-align: center;">/</p> <p>A: Rubber– foot of the electric stove. B: Nichrome – used as a heating element in an electric stove. C: Copper- electric wires. (any other example with its use in an electric appliance)</p>	(½x3)	3
31	<ul style="list-style-type: none"> • Object should be placed between C and F / between 18cm to 36 cm from the mirror. • Mirror formula = $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$ • Magnification $m = -2$ $f = -18 \text{ cm}$ $m = -\frac{v}{u} = -2$ $\therefore v = 2u$ • $\frac{1}{2u} + \frac{1}{u} = \frac{1}{-18 \text{ cm}}$ $\therefore \frac{3}{2u} = \frac{1}{-18 \text{ cm}}$ $u = -27 \text{ cm}$ 	1 ½ 1	3
32	<p>(A)</p> <ul style="list-style-type: none"> • The number of atoms of each element remains same before and after a chemical reaction / to satisfy the law of conservation of mass. • Law of conservation of mass. • Mass can neither be created nor destroyed in a chemical reaction. • $3\text{Zn} + 2\text{H}_3\text{PO}_4 \longrightarrow \text{Zn}_3(\text{PO}_4)_2 + 3\text{H}_2$ <p style="text-align: center;">OR</p>	½ ½ 1 1	3

- Butane gives blue flame
- Butyne gives yellow flame with smoke/sooty flame.

½

½

OR

(B) (i)

• Carbon can gain four electrons forming C^{4-} anion but it would be difficult for the nucleus with six protons to hold on ten electrons.

1

• Carbon can lose a four electrons forming C^{4+} but it would require a large amount of energy to remove four electrons leaving behind a carbon cation with six protons. Thus, carbon forms covalent compounds.

1

(ii) An atom or a group of atoms/heteroatoms which determines the chemical properties of an organic compound is called functional group.

1

Name	Structural formula	Functional group
(a) Ethanol	$\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{OH} \\ \quad \\ \text{H} \quad \text{H} \end{array} / \text{CH}_3\text{CH}_2\text{OH}$	- OH / alcohol
(b) Ethanoic Acid	$\begin{array}{c} \text{H} \quad \text{O} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{OH} \\ \\ \text{H} \end{array} / \text{CH}_3\text{COOH}$	$\begin{array}{c} -\text{COOH} / \\ \text{O} \\ \\ -\text{C}-\text{OH} / \\ \text{carboxylic acid} \end{array}$

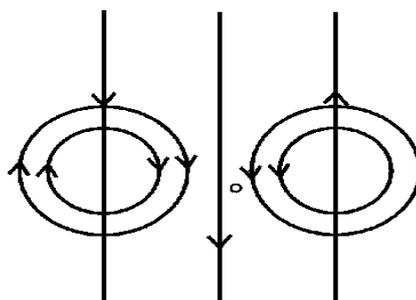
½x4

5

35

(A)

(i)



Correct Pattern

1

Correct direction

1

	<p>(ii) (a)</p> <ul style="list-style-type: none"> • red wire : Live wire • black wire : Neutral wire • green wire : Earth wire <p>(b) 220 V</p> <p>(c) This is used as a safety measure. It ensures that any leakage of the current to the metallic body of the appliance keeps its potential to that of the earth and the user may not get a severe electric shock.</p> <p style="text-align: center;">OR</p> <p>(B)(i)</p> <p>(a) The conductor AB gets displaced.</p> <p>(b)</p> <ul style="list-style-type: none"> - By reversing the direction of the current. - By reversing the direction of the magnetic field. <p>(ii) When the direction of current is at right angles to the direction of the magnetic field.</p> <p>(iii) Stretch the thumb, fore finger and middle finger of your left hand such that they are mutually perpendicular. If the first finger points in the direction of magnetic field and the second finger in the direction of the current, then the thumb will point in the direction of the force acting on the conductor.</p>	<p>$\frac{1}{2} \times 3$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>1</p> <p>1+1</p> <p>1</p> <p>1</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>5</p>
<p>36</p>	<p>(A) (i)</p> <ul style="list-style-type: none"> • Regeneration: The ability to give rise to new individual organism from their body parts / If the individual is somehow cut or broken up into many pieces, then each piece grows into a new organism. <ul style="list-style-type: none"> • Organism show regeneration: <i>Planaria</i> / <i>Hydra</i> • Organism does not show regeneration: <i>Spirogyra</i> (any other example) • Because it does not have specialised cells which proliferate to make new cells type and tissues. <p>(ii)</p> <ul style="list-style-type: none"> • Spirogyra. • It reproduces through Fragmentation. 	<p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	<p></p> <p></p> <p></p> <p></p> <p></p>

	<ul style="list-style-type: none"> It simply breaks up into smaller pieces upon maturation. The pieces grow into new individuals. <p style="text-align: center;">OR</p> <p>(B)(i)</p> <p>(a) vas deferens (b) testes (c) prostate gland/ seminal vesicles (d) scrotum</p> <p>(ii) Consists of genetic material, has a tail for movement, small in size. (any two)</p> <p>(iii)</p> <ul style="list-style-type: none"> Vas deferens in the males and fallopian tube in females is blocked to prevent fertilization. Can cause infections if not performed properly. 	1	
SECTION E			
37	<p>(i) A rainbow (or any other)</p> <p>(ii) Dispersion of white light takes place.</p> <p>(iii) (A)</p> <ul style="list-style-type: none"> The presence of water droplets in the atmosphere. The sun must be at the back of the observer. <p style="text-align: center;">OR</p> <p>(iii) (B)</p> <div style="text-align: center;"> </div> <p>($\frac{1}{2}$ mark for diagram and $\frac{1}{2}$ for labelling a,b,c)</p>	1 1	
		1+1	
		$\frac{1}{2} \times 4$	
			4
38	<p>(i) Hydrochloric acid/ HCl and Sodium hydroxide / NaOH</p> <p>(ii) -Neutral</p>	$\frac{1}{2} + \frac{1}{2}$	
		$\frac{1}{2}$	

	<p>- as it is a salt of strong acid and strong base.</p> <p>(iii) (A)</p> <ul style="list-style-type: none"> • Aqueous solution of sodium chloride (brine) decomposes (electrolysed) and produces: <ul style="list-style-type: none"> • NaOH solution near cathode • Cl₂ at anode • H₂ at cathode <p style="text-align: center;">OR</p> <p>(iii) (B)</p> <p>Washing soda is obtained from sodium chloride by following reactions:</p> <ul style="list-style-type: none"> • $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \longrightarrow \text{NH}_4\text{Cl} + \text{NaHCO}_3$ • $2\text{NaHCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$ • Recrystallisation of sodium carbonate gives washing soda. • $\text{Na}_2\text{CO}_3 + 10\text{H}_2\text{O} \longrightarrow \text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ 	<p>½</p> <p>½</p> <p>½ x3</p> <p>½ x 4</p>	<p>4</p>
39	<p>(i) Reflex action.</p> <ul style="list-style-type: none"> • The sudden action in response to stimuli in the environment. <p>(ii)</p> <p>(a) Motor neuron – carries message from spinal cord to the effector organ/muscle.</p> <p>(b) Relay neuron – Connects sensory neuron to motor neuron.</p> <p>(iii)</p> <p>(A) -Central Nervous system. Components: Brain; spinal cord ,</p> <p>-Peripheral Nervous system. Components: cranial nerves ; spinal nerves.</p> <p style="text-align: center;">OR</p> <p>(iii)(B)</p> <p>(a) Fore-brain/Cerebrum</p> <p>(b) Cerebellum / Hind-brain</p> <p>(c) Medulla/ Hind-brain</p> <p>(d) Fore-brain</p>	<p>½</p> <p>½</p> <p>½</p> <p>½</p> <p>½ x4</p> <p>½ x4</p>	<p>4</p>