

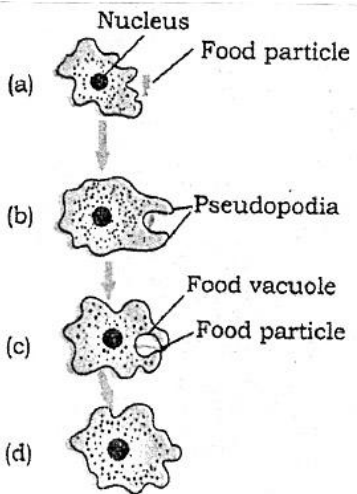
Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Secondary School Examination, 2026 (Xth)
SUBJECT NAME SCIENCE (Q.P. CODE /Set No 31/5/1)

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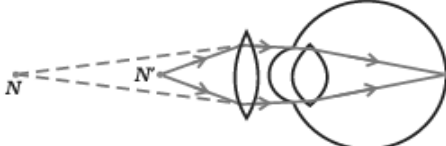
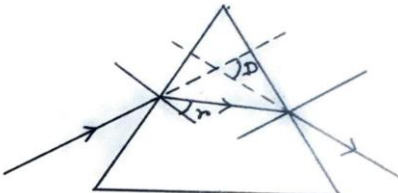
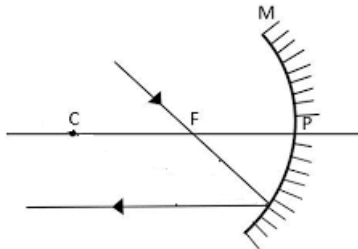
MARKING SCHEME
SCIENCE (Subject Code-086)
(PAPER CODE: 31/5/1) (10-05-86K)

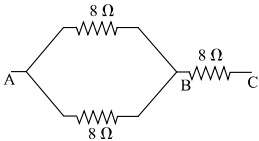
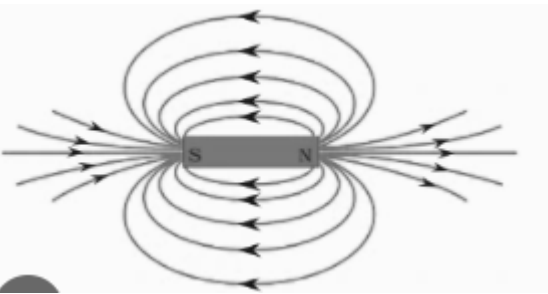
Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks	Total marks
	SECTION – A Biology		
1.	(C)/ Guard cells	1	1
2.	(A)/ Pituitary gland	1	1
3.	(D)/ Glucose \rightarrow pyruvate $\xrightarrow{\text{lack of oxygen}}$ Lactic acid + Energy	1	1
4.	(C)/ Uterus	1	1
5.	(C)/ 44 + XY	1	1
6.	(B)/ DDT	1	1
7.	(B)/ Breakdown complex organic material into simple inorganic substances.	1	1
8.	(A)/ Both A and R are true and R is the correct explanation of A.	1	1
9.	(A)/ Both A and R are true and R is the correct explanation of A.	1	1
10.		2	2
11.	(A) P – Receptor/Skin Q - Sensory Neuron R - Relay Neuron S – Effector/Muscles in arm. OR (B) (i) Cytokinin (ii) Absciscic acid/ ABA (iii) Auxin (iv) Absciscic acid/ ABA	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
12.	<ul style="list-style-type: none"> Oxygenated blood from lungs comes to left atrium which pushes it to left ventricle \rightarrow Left ventricle contracts to push blood into aorta, to be sent to body parts \rightarrow Deoxygenated blood from body parts is collected and sent to right atrium \rightarrow 	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	

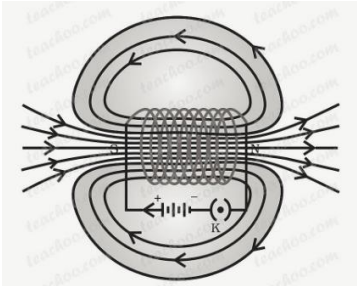
	<ul style="list-style-type: none"> Right atrium pushes it to right ventricle, to be sent to lungs for oxygenation. 	½	2																									
13.	<div> <div> <ul style="list-style-type: none"> <div> <div>Parents</div> <div> <div>RRYY</div> <div>(Round, Yellow)</div> </div> <div> <div>rryy</div> <div>(Wrinkled, green)</div> </div> </div> <div> <div> <div>RrYy</div> <div>(Round, Yellow)</div> </div> <div>- F₁</div> </div> <div> <div>self pollination</div> </div> </div> <table> <tr> <td></td> <td>RY</td> <td>Ry</td> <td>rY</td> <td>ry</td> </tr> <tr> <td>RY</td> <td>RRYY</td> <td>RRYy</td> <td>RrYY</td> <td>RrYy</td> </tr> <tr> <td>Ry</td> <td>RRYy</td> <td>RRyy</td> <td>RrYy</td> <td>Rryy</td> </tr> <tr> <td>rY</td> <td>RrYY</td> <td>RrYy</td> <td>rrYY</td> <td>rrYy</td> </tr> <tr> <td>Ry</td> <td>RrYy</td> <td>Rryy</td> <td>rrYy</td> <td>rryy</td> </tr> </table> <div> <ul style="list-style-type: none"> <div> <div>(i)</div> <div>RRYY – 1</div> </div> <div> <div>(ii)</div> <div>rryy – 1</div> </div> </div> </div>		RY	Ry	rY	ry	RY	RRYY	RRYy	RrYY	RrYy	Ry	RRYy	RRyy	RrYy	Rryy	rY	RrYY	RrYy	rrYY	rrYy	Ry	RrYy	Rryy	rrYy	rryy	<div>1</div> <div>1</div> <div>½</div> <div>½</div>	3
	RY	Ry	rY	ry																								
RY	RRYY	RRYy	RrYY	RrYy																								
Ry	RRYy	RRyy	RrYy	Rryy																								
rY	RrYY	RrYy	rrYY	rrYy																								
Ry	RrYy	Rryy	rrYy	rryy																								
14.	<div>(a)</div> <ul style="list-style-type: none"> Plastics being non - biodegradable persist in environment for a long time.<div>(any other harmful effect)</div> Alternative - Jute or cloth bag<div>(any other suitable alternative)</div> <div>(b)</div> <ul style="list-style-type: none"> Pesticides and chemical fertilizers are not biodegradable. They accumulate progressively at each trophic level. As human beings occupy the top level in any food chain the maximum concentration of these chemicals get accumulated in our bodies. This Phenomenon is biological magnification. 	<div>½</div> <div>½</div> <div>1</div> <div>1</div>	3																									
15.	<div>(a)</div> <ul style="list-style-type: none"> Structure → Bowman’s capsule is a cup shaped end of a coiled tube (nephron) Function → Bowman’s capsule collects the filtrate from the blood. <div>(b)</div> <p>Most of the water, salt, glucose, amino acids are selectively reabsorbed from the filtrate into the blood as the urine flows along the tubular part of nephron.</p> <div>(c)</div> <ul style="list-style-type: none"> Excretion is the process of removal of metabolic wastes/ nitrogenous waste/ urea/uric acid from the body. It is essential for survival of a living organism as the excretory products are toxic and harmful to the organism. 	<div>½</div> <div>½</div> <div>1</div> <div>1</div> <div>1</div>																										

25.	(i) The substances whose odour changes in acidic or basic media. (ii) The fixed number of water molecules present in one formula unit of a salt.	1 1	2
26.	(i) Brown fumes of nitrogen dioxide are formed. $2\text{Pb}(\text{NO}_3)_2(\text{s}) \xrightarrow{\text{Heat}} 2\text{PbO}(\text{s}) + 4\text{NO}_2(\text{g}) + \text{O}_2(\text{g})$ (ii) Smell of burning sulphur is observed/ Colour of crystal changes. $2\text{FeSO}_4(\text{s}) \xrightarrow{\text{Heat}} \text{Fe}_2\text{O}_3(\text{s}) + \text{SO}_2(\text{g}) + \text{SO}_3(\text{g})$ (iii) White silver chloride turns grey. $2\text{AgCl}(\text{s}) \xrightarrow{\text{Sunlight}} 2\text{Ag}(\text{s}) + \text{Cl}_2(\text{g})$ (Note: Award full marks if balanced chemical equation is written)	½ ½ ½ ½ ½	3
27.	(A) (a) <ul style="list-style-type: none"> Calcium sulphate hemihydrate $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ (b) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O} \xrightarrow{373\text{K}} \text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O} + \frac{3}{2}\text{H}_2\text{O}$ (c) Plaster of Paris is used for <ul style="list-style-type: none"> making toys to support fractured bones in right position. <p style="text-align: right;">(or any other two uses)</p> <p style="text-align: center;">OR</p> (B) (a) Methanoic acid/ Formic acid/ HCOOH . (b) (i) When acid is added to water, it does not cause excessive local heating/ does not cause splash out and burns. (ii) Baking soda, being alkaline in nature, neutralises excess acid in stomach and provides relief.	½ ½ 1 ½ ½ 1 1 1	3
28.	(a) <ul style="list-style-type: none"> $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{OH}$ / <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> $\begin{array}{cccc} \text{H} & \text{H} & \text{H} & \text{H} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{O}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array}$ </div> <ul style="list-style-type: none"> Butanol (b) <ul style="list-style-type: none"> Ethanol gets oxidised to form ethanoic acid. $\text{CH}_3 - \text{CH}_2 - \text{OH} \xrightarrow{\text{alkaline KMnO}_4 + \text{heat}} \text{CH}_3\text{COOH}$ (c)	½ ½ ½ ½	

	<ul style="list-style-type: none"> $\text{CH}_3\text{-COOH} + \text{CH}_3\text{-CH}_2\text{OH} \xrightleftharpoons{\text{Acid}} \text{CH}_3\text{-}\overset{\text{O}}{\underset{\text{O}}{\parallel}}\text{C-O-CH}_2\text{-CH}_3 + \text{H}_2\text{O}$ Esterification reaction. <p style="text-align: center;">OR</p> <p>(c)</p> <ul style="list-style-type: none"> Ethanol will get dehydrated to form ethene. $\text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{Conc. H}_2\text{SO}_4 \text{ at } 443\text{K}} \text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O}$ Dehydrating agent/ Catalyst 	1 1 ½ ½ 1	4
29.	<p>(A)</p> <p>(i) (I) A considerable amount of energy is required to break strong inter-ionic attraction. (II) Solder has low melting point. (III) Because Na or Mg have more affinity for oxygen than carbon.</p> <p>(ii) (I) Fe₂O₃/ Iron (III) oxide (II) Thermit reaction (III) Fe₂O₃(s) + 2Al(s) → 2Fe(l) + Al₂O₃(s) + Heat (Deduct ½ mark if no/ incorrect balancing)</p> <p style="text-align: center;">OR</p> <p>(B) (i)</p> <p>(I) 2Cu₂O + Cu₂S → 6Cu(s) + SO₂(g) (II) 2ZnS(s) + 3O₂(g) → 2ZnO(s) + 2SO₂(g) (Deduct ½ mark if no/ incorrect balancing)</p> <p>(ii) (I) PVC provides insulation on the current carrying wires. (II) Copper does not react with cold water, hot water and steam. / Copper is a better conductor than steel.</p> <p>(iii)</p> $\text{Ca:} + \ddot{\text{O}}: \longrightarrow [\text{Ca}^{2+}][\ddot{\text{O}}: ^{2-}]$	1 1 1 ½ ½ 1 1 1 1 1 1	5
	SECTION – C PHYSICS		
30.	(A) / 20 cm	1	1
31.	(A) / converging lens	1	1
32.	(D) / Assertion (A) is false but Reason (R) is true.	1	1
33.	<p>(a) In optically rarer medium speed of light is more and in optically denser medium speed of light is less.</p> <p>(b) A < C < B</p>	1 1	2
34.	<p>(A) (i) While looking at objects nearer to eye, the curvature of the eye lens increases. Consequently, the focal length of the eye lens decreases. (ii) From 25cm (near point) to infinity (far point)</p> <p style="text-align: center;">OR</p> <p>(B)</p>	1 1	

	<div></div> <p>(Deduct ½ mark for not showing the direction of light)</p>	2	2						
35.	<div><p>(a)</p><div><p>$\angle r = \text{angle of refraction}$ $\angle D = \text{angle of deviation}$</p></div><p>Diagram Labelling</p><p>(b)</p><ul style="list-style-type: none">Angle of deviation will not change.The ray of light will retrace its original path.</div>	<div>1 ½ + ½ ½ ½</div>	3						
36.	<div><p>(a)</p><div></div><p>(b)</p><p>(i)</p><table><tr><th>Virtual Image formed by Convex mirror</th><th>Virtual Image formed by Concave mirror</th></tr><tr><td>Image is formed for all positions of the object</td><td>Image is formed when object is placed between Pole and Principal Focus</td></tr><tr><td>Small/diminished</td><td>Enlarged/magnified</td></tr></table><p>(Any one difference)</p><p>(ii)</p><p>$m = -2$</p><p>$m = \frac{\text{height of image}}{\text{height of object}} = \frac{h'}{h}$</p><p>$h = \frac{h'}{m}$</p><p>$h = \frac{-20}{-2}$</p><p>$h = 10 \text{ cm}$</p></div>	Virtual Image formed by Convex mirror	Virtual Image formed by Concave mirror	Image is formed for all positions of the object	Image is formed when object is placed between Pole and Principal Focus	Small/diminished	Enlarged/magnified	<div>1 1 ½ ½</div>	3
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<p>37.</p>	<p>(a) When the electric heater is switched on in a parallel circuit, it draws a large amount of current. As a result, the current through the bulb decreases, making the bulb glow dim.</p> <p>(b)</p> <ul style="list-style-type: none">  $\frac{1}{R_1} = \frac{1}{8} + \frac{1}{8}$ $R_1 = 4\Omega$ $R_{eq} = R_1 + 8\Omega$ $R_{eq} = 12\Omega$ 	<p>1</p> <p>1</p> <p>1</p>	<p>3</p>
<p>38.</p>	<p>(a) Ammeter reading becomes $\frac{X}{2}$ / halved</p> <p>(b) Ammeter reading becomes $2X$ / doubled</p> <p>(c)</p> <ul style="list-style-type: none"> Resistivity is equal to electrical resistance of a conductor of unit length and unit area of cross section. SI unit= $\Omega \text{ m}$ / ohm metre Resistivity of an alloy is higher than its constituent metals. <p style="text-align: center;">OR</p> <p>(c) (i) It has high melting point.</p> <p>(ii) The resistivity of an alloy is generally higher than that of its constituent metals. / Alloys do not oxidise (burn) readily at high temperatures.</p>	<p>1</p> <p>1</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>1</p>	<p>4</p>
<p>39.</p>	<p>(A) (i)</p>  <p>Characteristics:</p> <ul style="list-style-type: none"> The magnet field lines emerge from north pole and merge at south pole. Inside the magnet, the direction of field lines is from its south pole to its north pole. Thus, the magnetic field lines are closed curves. The relative strength of the magnetic field is shown by the degree of closeness of the field lines. 	<p>1</p>	

	<ul style="list-style-type: none"> No two field-lines are found to cross each other. (any two) 	(1+1)	
	(ii) Imagine that you are holding a current carrying straight conductor in your right hand such that the thumb points towards the direction of current. Then your fingers will wrap around the conductor in the direction of field lines of the magnetic field.	1	
	(iii) As the concentric circles become larger and larger, the magnetic field decreases.	1	
	OR		
	(B)		
	(i)		
		1	
	Salient features:		
	<ul style="list-style-type: none"> The pattern of the magnetic field lines in a solenoid is similar to that of a bar magnet. 	1	
	<ul style="list-style-type: none"> Field lines inside the solenoid are in the form of parallel straight lines. 	1	
	(ii)		
	<ul style="list-style-type: none"> A magnetic material which behaves like a magnet on passing electric current through it is called an electromagnet. 	1	
	<ul style="list-style-type: none"> It is made by wrapping a current carrying insulated copper wire in the form of a coil around a magnetic material like soft iron / By placing a magnetic material like soft iron as a core material inside the current carrying solenoid. 	1	
			5

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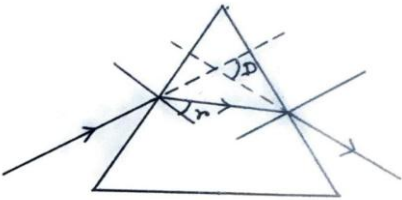
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2.	(D)/ Budding	1	1
3.	(C)/ Guard cells	1	1
4.	(D)/Glucose $\xrightarrow{\text{lack of oxygen}}$ pyruvate \rightarrow Lactic acid + Energy	1	1
5.	(B)/ DDT	1	1
6.	(C)/ 44 + XY	1	1
7.	(C)/ 1, 2, 3 and 4	1	1
8.	(A)/ Both A and R are true and R is the correct explanation of A.	1	1
9.	(A)/ Both A and R are true and R is the correct explanation of A.	1	1
10.	<p>(A) P – Receptor/Skin Q - Sensory Neuron R - Relay Neuron S – Effector/Muscles in arm.</p> <p style="text-align: center;">OR</p> <p>(B) (i) Cytokinin (ii) Absciscic acid/ ABA (iii) Auxin (iv) Absciscic acid/ ABA</p>	<p>½ ½ ½ ½</p> <p>½ ½ ½ ½</p>	2
11.	<ul style="list-style-type: none"> Oxygenated blood from lungs comes to left atrium which pushes it to left ventricle \rightarrow Left ventricle contracts to push blood into aorta, to be sent to body parts \rightarrow Deoxygenated blood from body parts is collected and sent to right atrium \rightarrow Right atrium pushes it to right ventricle, to be sent to lungs for oxygenation. 	<p>½ ½ ½ ½</p>	2
12.	<p>(i)</p> <ul style="list-style-type: none"> P – Chloroplasts Absorb light energy and helps in photosynthesis. <p>(ii)</p> $6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{Sunlight}]{\text{Chlorophyll}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$ <p style="text-align: center;">(glucose)</p>	<p>½ ½</p> <p>1</p>	2
13.	<p>(a)</p> <ul style="list-style-type: none"> Plastics being non - biodegradable persist in environment for a long time. (any other harmful effect) Alternative - Jute or cloth bag 	<p>½ ½</p>	

	<p>(any other suitable alternative)</p> <p>(b)</p> <ul style="list-style-type: none"> Pesticides and chemical fertilizers are not biodegradable. They accumulate progressively at each trophic level. As human beings occupy the top level in any food chain the maximum concentration of these chemicals get accumulated in our bodies. This Phenomenon is biological magnification. 	<p>1</p> <p>1</p>	<p>3</p>
14.	<p>(a)</p> <ul style="list-style-type: none"> Adrenal gland Adrenaline <p>(b) Responses</p> <ul style="list-style-type: none"> Adrenaline acts on the heart and makes the heart beats faster to provide oxygen to the muscles. The blood supply to skin and digestive system is reduced due to contraction of muscles of arteries to divert the blood through skeletal muscles. Breathing rate increases due to contraction of diaphragm and rib muscles. <p>(any two responses)</p>	<p>½</p> <p>½</p> <p>1+1</p>	<p>3</p>
15.	<p>(a)</p> <ul style="list-style-type: none"> Structure → Bowman's capsule is a cup shaped end of a coiled tube (nephron) Function → Bowman's capsule collects the filtrate from the blood. <p>(b) Most of the water, salt, glucose, amino acids are selectively reabsorbed into the blood from the initial filtrate as the urine flows along the tubular part of nephron.</p> <p>(c)</p> <ul style="list-style-type: none"> Excretion is the process of removal of metabolic wastes/nitrogenous waste/ urea/uric acid from the body. It is essential for survival of a living organism as the excretory products are toxic and harmful to the organism. <p style="text-align: center;">OR</p> <p>(c)</p> <ul style="list-style-type: none"> Both lungs and kidneys remove metabolic waste /Lungs remove carbon dioxide gas (CO₂) from the blood while kidneys remove nitrogenous wastes like urea from the blood. Both lungs and kidneys have thin-walled blood Capillaries involved in exchange of gases and filtration of blood respectively. 	<p>½</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>4</p>

16.	<p>(A)</p> <p>(i) Vegetative propagation. 1</p> <p>(ii) Advantages: -</p> <ul style="list-style-type: none"> Plants raised by vegetative propagation can bear flowers and fruits earlier than those produced from seeds. Plants produced by vegetative propagation are genetically similar to the parent plant. Plants that have lost the capacity to produce seed can reproduce by Vegetative propagation. <p style="text-align: right;">(1+1)</p> <p>(iii) Roses, grapes, banana, orange, jasmine etc. $\frac{1}{2} + \frac{1}{2}$</p> <p style="text-align: right;">(any two advantages, any other advantage)</p> <p>(iv) Regeneration is carried out by specialised cells. The organisms which have those cells only can show regeneration. 1</p> <p style="text-align: center;">OR</p> <p>(B)</p> <p>(i) (a) Zygote: It divides several times to form an embryo within the ovule. 1</p> <p>(b) Ovule: It develops a tough coat and is gradually converted into a seed. 1</p> <p>(c) Ovary: Grows rapidly and ripens to form a fruit. 1</p> <p>(d) Sepals: They shrivel and fall off. 1</p> <p>(ii) Germination is the process when the mature seed develops into a seedling under appropriate conditions. 1</p>		
			5
SECTION – B			
Chemistry			
17.	(D)/ C_4H_8 and C_5H_{12}	1	1
18.	(D)/ Al_2O_3	1	1
19.	(C)/ The amount of H_2 gas evolved is less amount.	1	1
20.	(B)/ 2: 1	1	1
21.	(D)/ CH_3COONa CH_3COOH $NaOH$ Basic	1	1
22.	(C)/ C_3H_8	1	1
23.	(D)/ magnesium and aluminium	1	1
24.	(A)/ Both A and R are true, and R is the correct explanation of A.	1	1
25.	<ul style="list-style-type: none"> Universal indicator is obtained by mixing several indicators. Universal indicator shows different colours at different concentrations of hydrogen ions in a solution. 	1 1	2
26.	(i) Calcium carbonate decomposes to calcium oxide and carbon dioxide.	$\frac{1}{2}$	

	$\text{CaCO}_3(\text{s}) \xrightarrow{\text{Heat}} \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$ <p>(ii) Silver bromide decomposes to silver and bromine by light.</p> $2\text{AgBr}(\text{s}) \xrightarrow{\text{Sunlight}} 2\text{Ag}(\text{s}) + \text{Br}_2(\text{g})$ <p>(iii) Lead displaces copper from copper chloride solution.</p> $\text{Pb}(\text{s}) + \text{CuCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{aq}) + \text{Cu}(\text{s})$ <p>(Note: Award full marks if balanced chemical equation is written)</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3
27.	<p>(A)</p> <p>(a)</p> <ul style="list-style-type: none"> Calcium sulphate hemihydrate $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ <p>(b) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O} \xrightarrow{373\text{K}} \text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O} + \frac{3}{2}\text{H}_2\text{O}$</p> <p>(c) Plaster of Paris is used for</p> <ul style="list-style-type: none"> making toys to support fractured bones in right position. <p style="text-align: right;">(any other two uses)</p> <p style="text-align: center;">OR</p> <p>(B)</p> <p>(a) Methanoic acid/ Formic acid/ HCOOH.</p> <p>(b) (i) When acid is added to water, it does not cause excessive local heating/ does not cause splash out and burns.</p> <p>(ii) Baking soda, being alkaline in nature, neutralises excess acid in stomach and provides relief.</p>	$\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2}$ 1 1 1	3
28.	<p>(a)</p> <ul style="list-style-type: none"> $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2\text{OH}$ / <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> $\begin{array}{cccc} \text{H} & \text{H} & \text{H} & \text{H} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{O}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array}$ </div> <ul style="list-style-type: none"> Butanol <p>(b)</p> <ul style="list-style-type: none"> Ethanol gets oxidised to form ethanoic acid. $\text{CH}_3 - \text{CH}_2 - \text{OH} \xrightarrow{\text{alkaline KMnO}_4 + \text{heat}} \text{CH}_3\text{COOH}$ <p>(c)</p> <ul style="list-style-type: none"> $\text{CH}_3 - \text{COOH} + \text{CH}_3 - \text{CH}_2\text{OH} \xrightleftharpoons{\text{Acid}} \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O} - \text{CH}_2 - \text{CH}_3 + \text{H}_2\text{O}$ <ul style="list-style-type: none"> Esterification reaction. <p style="text-align: center;">OR</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 1	

	(c) <ul style="list-style-type: none"> Ethanol will get dehydrated to form ethene. $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{Conc. H}_2\text{SO}_4 \text{ at } 443\text{K}} \text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O}$ <ul style="list-style-type: none"> Dehydrating agent / Catalyst 	½ ½ 1	4
29.	(A) <p>(i) (I) A considerable amount of energy is required to break strong inter-ionic attraction.</p> <p>(II) Solder has low melting point.</p> <p>(III) Because Na or Mg have more affinity for oxygen than carbon.</p> <p>(ii) (I) Fe₂O₃/ Iron (III) oxide</p> <p>(II) Thermit reaction</p> <p>(III) Fe₂O₃(s) + 2Al(s) → 2Fe(l) + Al₂O₃(s) + Heat (Deduct ½ mark if no/ incorrect balancing)</p> <p style="text-align: center;">OR</p> <p>(B) (i)</p> <p>(I) 2Cu₂O + Cu₂S → 6Cu(s) + SO₂(g)</p> <p>(II) 2ZnS(s) + 3O₂(g) → 2ZnO(s) + 2SO₂(g) (Deduct ½ mark if no/ incorrect balancing in each case)</p> <p>(ii) (I) PVC provides insulation on the current carrying wires</p> <p>(II) Copper does not react with cold water, hot water and steam. / Copper is a better conductor than steel.</p> <p>(iii)</p> $\text{Ca} \cdot + \cdot \ddot{\text{O}} \cdot \longrightarrow [\text{Ca}^{2+}] [\cdot \ddot{\text{O}} \cdot]^{2-}$	1 1 1 ½ ½ 1 1 1 (Deduct ½ mark if no/ incorrect balancing in each case) 1 1 1 1	5
	SECTION – C Physics		
30.	(A)/Converging lens.	1	1
31.	(A)/20cm	1	1
32.	(D)/Assertion (A) is false but Reason (R) is true.	1	1
33.	(a) Absolute refractive index of a medium is the ratio of speed of light in air to the speed of light in the given medium / Refractive index of a medium with respect to air / $n = \frac{c}{v}$ <p>(b) V_D < V_A < V_B < V_C</p>	1 1	2
34.	(A) (i) While looking at objects nearer to eye, the curvature of the eye lens increases. Consequently, the focal length of the eye lens decreases. (ii) From 25cm (near point) to infinity (far point) <p style="text-align: center;">OR</p> (B)	1 1	

37.	<p>(a)</p>  <p style="text-align: right;">Diagram Labelling</p> <p>(b)</p> <ul style="list-style-type: none"> Angle of deviation will not change. The ray of light will retrace its original path. 	<p>1 $\frac{1}{2} + \frac{1}{2}$</p> <p>$\frac{1}{2}$ $\frac{1}{2}$</p> <p>3</p>													
38.	<p>(a) Ammeter reading becomes $\frac{x}{2}$ / halved</p> <p>(b) Ammeter reading becomes $2X$ / doubled</p> <p>(c)</p> <ul style="list-style-type: none"> Resistivity is equal to electrical resistance of a conductor of unit length and unit area of cross section. SI unit = $\Omega \text{ m}$ / ohm metre Resistivity of an alloy is higher than its constituent metals. <p style="text-align: center;">OR</p> <p>(c) (i) It has high melting point.</p> <p>(ii) The resistivity of an alloy is generally higher than that of its constituent metals. / Alloys do not oxidise (burn) readily at high temperatures.</p>	<p>1</p> <p>1</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>1</p> <p>4</p>													
39.	<p>(A) (i) Features</p> <ul style="list-style-type: none"> Direction of current changes periodically/ alternating current. Frequency of current supplied in our houses is 50 Hz. <p>(ii)</p> <table border="1" data-bbox="359 1668 1142 1937"> <thead> <tr> <th colspan="2">Direct current</th><th colspan="2">Alternating current</th></tr> </thead> <tbody> <tr> <td>(I)</td><td>Flows in one direction</td><td>(I)</td><td>Reverses its direction periodically.</td></tr> <tr> <td>(II)</td><td>Sources : Cell / battery</td><td>(II)</td><td>Source : Power-plant</td></tr> </tbody> </table> <p style="text-align: center;">(any other suitable difference)</p>	Direct current		Alternating current		(I)	Flows in one direction	(I)	Reverses its direction periodically.	(II)	Sources : Cell / battery	(II)	Source : Power-plant	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	
Direct current		Alternating current													
(I)	Flows in one direction	(I)	Reverses its direction periodically.												
(II)	Sources : Cell / battery	(II)	Source : Power-plant												

	(iii) Live wire has red insulation cover and neutral wire has black insulation cover.	1			
	OR				
	(B) (i) Because it is a safety device, which prevents the damage to electric appliances and circuit caused due to overloading.	1			
	(ii)				
	<table><tr><th>Over loading</th><th>Short circuiting</th></tr><tr><td>It is caused when too many appliances are connected to a single socket./ Due to accidental hike in the supply voltage.</td><td>It is caused due to direct contact of live wire with the neutral wire.</td></tr></table>	Over loading		Short circuiting	It is caused when too many appliances are connected to a single socket./ Due to accidental hike in the supply voltage.
Over loading	Short circuiting				
It is caused when too many appliances are connected to a single socket./ Due to accidental hike in the supply voltage.	It is caused due to direct contact of live wire with the neutral wire.				
(iii)					
<ul style="list-style-type: none">• A piece of wire made of a metal or an alloy.• appropriate (low) melting point.	1 1	5			

Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Secondary School Examination, 2026 (Xth)
SUBJECT NAME SCIENCE (Q.P. CODE /Set No 31/5/3)

General Instructions: -

1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2	“Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, evaluation done and several other aspects. Its leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in Newspaper/Website, etc. may invite action under various rules of the Board and IPC.”
3	Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one’s own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. However, while evaluating, answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In Class-X, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.
4	The Marking scheme carries only suggested value points for the answers. These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
6	Evaluators will mark (✓) wherever answer is correct. For wrong answer CROSS ‘X’ be marked. Evaluators will not put right (✓) while evaluating which gives an impression that answer is correct and no marks are awarded. This is most common mistake which evaluators are committing.
7	If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
9	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note “Extra Question” .

10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks 80 (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines). This is in view of the reduced syllabus and number of questions in question paper.
13	<p>Ensure that you do not make the following common types of errors committed by the Examiner in the past :-</p> <ul style="list-style-type: none"> • Leaving answer or part thereof unassessed in an answer book. • Giving more marks for an answer than assigned to it. • Wrong totaling of marks awarded on an answer. • Wrong transfer of marks from the inside pages of the answer book to the title page. • Wrong question wise totaling on the title page. • Wrong totaling of marks of the two columns on the title page. • Wrong grand total. • Marks in words and figures not tallying/not same. • Wrong transfer of marks from the answer book to online award list. • Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.) <p>Half or a part of answer marked correct and the rest as wrong, but no marks awarded.</p>
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0) Marks.
15	Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
16	The Examiners should acquaint themselves with the guidelines given in the “Guidelines for Spot Evaluation” before starting the actual evaluation.
17	Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

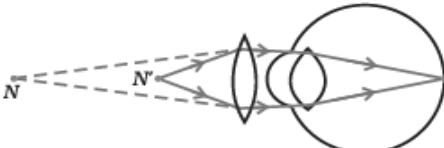
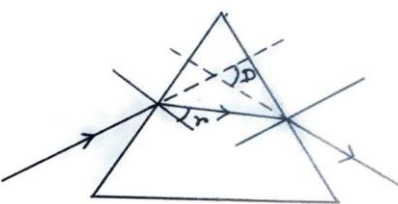
MARKING SCHEME
SCIENCE (Subject Code-086)
(PAPER CODE: 31/5/3) (10-05-86K)

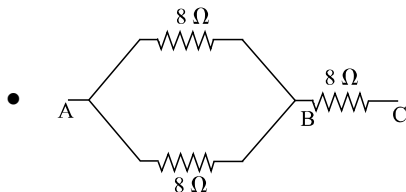
Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks	Total marks
	SECTION – A (Biology)		
1.	(D) / Glucose → pyruvate $\xrightarrow{\text{lack of oxygen}}$ Lactic acid + Energy	1	1
2.	(B)/ DDT	1	1
3.	(A) / Producers	1	1
4.	(C) / Guard cells	1	1
5.	(B) / Ozone shields earth's surface from harmful infra - red radiations.	1	1
6.	(C) / Uterus	1	1
7.	(C) / 44 + XY	1	1
8.	(A)/ Both A and R are true and R is the correct explanation of A.	1	1
9.	(B) / Both A and R are correct but R is not the correct explanation for A	1	1
10.	<ul style="list-style-type: none"> Oxygenated blood from lungs comes to left atrium which pushes it to left ventricle → Left ventricle contracts to push blood into aorta, to be sent to body parts → Deoxygenated blood from body parts is collected and sent to right atrium → Right atrium pushes it to right ventricle, to be sent to lungs for oxygenation. 	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
11.	The lungs always contain a residual volume of air so that there is sufficient time for oxygen to be absorbed and for the carbon dioxide to be released.	2	2
12.	(A) P – Receptor/Skin Q - Sensory Neuron R - Relay Neuron S – Effector/Muscles in arm. OR (B) (i) Cytokinin (ii) Absciscic acid/ ABA (iii) Auxin (iv) Absciscic acid/ ABA	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
13.	(a) <ul style="list-style-type: none"> Plastics being non - biodegradable persist in environment for a long time. (any other harmful effect) Alternative - Jute or cloth bag (any other suitable alternative) (b)	$\frac{1}{2}$ $\frac{1}{2}$	

	<ul style="list-style-type: none"> Pesticides and chemical fertilizers are not biodegradable. They accumulate progressively at each trophic level. As human beings occupy the top level in any food chain the maximum concentration of these chemicals get accumulated in our bodies. This Phenomenon is biological magnification. 	1 1	3
14.	<p>(a)</p> <p>(b) Round, yellow: 9 Round, green: 3 Wrinkled yellow: 3 Wrinkled green: 1</p>	2 1	3
15.	<p>(a)</p> <ul style="list-style-type: none"> Structure → Bowman's capsule is a cup shaped end of a coiled tube (nephron) Function → Bowman's capsule collects the filtrate from the blood. <p>(b) Most of the water, salt, glucose, amino acids are selectively reabsorbed from the initial filtrate into the blood as the urine flows along the tubular part of nephron.</p> <p>(c)</p> <ul style="list-style-type: none"> Excretion is the process of removal of metabolic wastes/ nitrogenous waste/ urea/uric acid from the body. It is essential for survival of a living organism as the excretory products are toxic and harmful to the organism. <p style="text-align: center;">OR</p> <p>(c)</p>	$\frac{1}{2}$ $\frac{1}{2}$ 1 1 1	

	<ul style="list-style-type: none"> Both lungs and kidneys remove metabolic waste /Lungs remove carbon dioxide gas (CO₂) from the blood while kidneys remove nitrogenous wastes like urea from the blood. Both lungs and kidneys have thin-walled blood Capillaries involved in exchange of gases and filtration of blood respectively. 	1 1	4
16.	<p>(A)</p> <p>(i) Vegetative propagation.</p> <p>(ii) Advantages: -</p> <ul style="list-style-type: none"> Plants raised by vegetative propagation can bear flowers and fruits earlier than those produced from seeds. Plants produced by vegetative propagation are genetically similar to the parent plant. Plants that have lost the capacity to produce seed can reproduce by Vegetative propagation. <p style="text-align: right;">(any two advantages)</p> <p>(iii) Roses, grapes, banana, orange, jasmine etc.</p> <p style="text-align: right;">(any two examples)</p> <p>(iv) Regeneration is carried out by specialised cells. The organisms which have those cells only can show regeneration.</p> <p style="text-align: center;">OR</p> <p>(B)</p> <p>(i) (a) Zygote: It divides several times to form an embryo within the ovule.</p> <p>(b) Ovule: It develops a tough coat and is gradually converted into a seed.</p> <p>(c) Ovary: Grows rapidly and ripens to form a fruit.</p> <p>(d) Sepals: They shrivel and fall off.</p> <p>(ii) Germination is the process when the mature seed develops into a seedling under appropriate conditions.</p>	1 1 + 1 ½+½ 1	
	SECTION – B (Chemistry)		
17.	(D)/ Al ₂ O ₃	1	1
18.	(C)/ C ₃ H ₈	1	1
19.	(B)/ MgO, turns red litmus blue.	1	1
20.	(D)/ C ₄ H ₈ and C ₅ H ₁₂	1	1
21.	(D)/ hydrochloric acid and sodium hydroxide	1	1
22.	(D)/ CH ₃ COONa CH ₃ COOH NaOH Basic	1	1
23.	(C)/ (Q) and (R)	1	1
24.	(A)/ Both A and R are true, and R is the correct explanation of A.	1	1

	<ul style="list-style-type: none"> $\text{CH}_3 - \text{CH}_2 - \text{OH} \xrightarrow{\text{alkaline KMnO}_4 + \text{heat}} \text{CH}_3\text{COOH}$ <p>(c)</p> <ul style="list-style-type: none"> $\text{CH}_3 - \text{COOH} + \text{CH}_3 - \text{CH}_2\text{OH} \xrightarrow{\text{Acid}} \text{CH}_3 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{O} - \text{CH}_2 - \text{CH}_3 + \text{H}_2\text{O}$ Esterification reaction. <p style="text-align: center;">OR</p> <p>(c)</p> <ul style="list-style-type: none"> Ethanol will get dehydrated to form ethene. $\text{CH}_3 - \text{CH}_2 - \text{OH} \xrightarrow{\text{alkaline KMnO}_4 + \text{heat}} \text{CH}_3\text{COOH}$ (Award full marks if equation is written with condition) Dehydrating agent/ Catalyst 	<p>½</p> <p>1</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p>	4
29.	<p>(A)</p> <p>(i) (I) A considerable amount of energy is required to break strong inter-ionic attraction.</p> <p>(II) Solder has low melting point.</p> <p>(III) Because Na or Mg have more affinity for oxygen than carbon.</p> <p>(ii) (I) Fe_2O_3/ Iron (III) oxide</p> <p>(II) Thermit reaction</p> <p>(III) $\text{Fe}_2\text{O}_3(\text{s}) + 2\text{Al}(\text{s}) \rightarrow 2\text{Fe}(\text{l}) + \text{Al}_2\text{O}_3(\text{s}) + \text{Heat}$ (Deduct ½ mark if no/ incorrect balancing)</p> <p style="text-align: center;">OR</p> <p>(B) (i)</p> <p>(I) $2\text{Cu}_2\text{O} + \text{Cu}_2\text{S} \rightarrow 6\text{Cu}(\text{s}) + \text{SO}_2(\text{g})$</p> <p>(II) $2\text{ZnS}(\text{s}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{ZnO}(\text{s}) + 2\text{SO}_2(\text{g})$ (Deduct ½ mark if no/ incorrect balancing in each case)</p> <p>(ii) (I) PVC provides insulation on the current carrying wires</p> <p>(II) Copper does not react with cold water, hot water and steam. / Copper is better conductor of heat than steel.</p> <p>(iii)</p> $\text{Ca} : \overset{+}{\curvearrowright} \overset{\times \times}{\underset{\times \times}{\text{O}}} : \longrightarrow [\text{Ca}^{2+}] [: \overset{\times \times}{\underset{\times \times}{\text{O}}} :]^{2-}$	<p>1</p> <p>1</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	5
	SECTION – C (Physics)		
30.	(A)/ 20cm	1	1
31.	(A)/ Converging lens	1	1
32.	(D)/ Assertion (A) is false but reason (R) is true.	1	1
33.	(a)	½	

	<ul style="list-style-type: none"> Speed of light in medium 'X' is more than in medium 'Y'. Because light ray bends away from the normal in optically rarer medium. <p>(b)</p> <ul style="list-style-type: none"> Optical density of medium 'X' is less than medium 'Y'. Because in optically rarer medium light bends away from the normal. 	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
34.	<p>(A) (i) While looking at objects nearer to eye, the curvature of the eye lens increases. Consequently, the focal length of the eye lens decreases.</p> <p>(ii) From 25cm (near point) to infinity (far point)</p> <p style="text-align: center;">OR</p> <p>(B)</p>  <p style="text-align: center;">(Deduct $\frac{1}{2}$ mark for not showing the direction of light)</p>	1 1 2	2
35.	<p>(a)</p>  <p style="text-align: center;"> $\angle r = \text{angle of refraction}$ $\angle D = \text{angle of deviation}$ </p> <p style="text-align: right;">Diagram Labelling</p> <p>(b)</p> <ul style="list-style-type: none"> Angle of deviation will not change. The ray of light will retrace its original path. 	1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3
36.	<p>(a) Height of object = 6.0 cm</p> <p>$u = -30$ cm</p> <p>$f = -15$ cm</p> $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ $\frac{1}{v} = \frac{1}{f} + \frac{1}{u}$ $\frac{1}{v} = \frac{1}{-15} + \frac{1}{-30}$	$\frac{1}{2}$ $\frac{1}{2}$	

	$v = -10 \text{ cm}$ (b) $m = \frac{v}{u}$ $m = \frac{-10}{-30}$ $m = \frac{1}{3}$ $m = \frac{\text{height of image}}{\text{height of object}} = \frac{h'}{h}$ $h' = m \times h$ $h = \frac{1}{3} \times 6$ $h = 2 \text{ cm}$	1 $\frac{1}{2}$	3
37.	(a) When the electric heater is switched on in a parallel circuit, it draws a large amount of current. As a result, the current through the bulb decreases, making the bulb glow dim. (b) <div style="text-align: center;">  </div> <ul style="list-style-type: none"> $\frac{1}{R_1} = \frac{1}{8} + \frac{1}{8}$ $R_1 = 4\Omega$ $R_{eq} = R_1 + 8\Omega$ $R_{eq} = 12\Omega$	1 1 1	3
38.	(a) Ammeter reading becomes $\frac{x}{2}$ / halved (b) Ammeter reading becomes $2X$ / doubled (c) <ul style="list-style-type: none"> Resistivity is equal to electrical resistance of a conductor of unit length and unit area of cross section. SI unit = $\Omega \text{ m}$ / ohm metre Resistivity of an alloy is higher than its constituent metals. <p style="text-align: center;">OR</p> (c) (i) It has high melting point. (ii) The resistivity of an alloy is generally higher than that of its constituent metals. / Alloys do not oxidise (burn) readily at high temperatures.	1 1 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 1	4

39	<p>(A)</p> <p>(i) Stretch the thumb, forefinger 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 current, then the thumb will point in the direction of motion or the force acting on the conductor.</p> <p>(ii) Electric motor, loud speaker, electric generator, microphones , measuring instruments. [Any two]</p> <p>(iii) For fig (I)</p> <ul style="list-style-type: none"> • Maximum force • Because direction of motion of electron is perpendicular to the direction of magnetic field. <p>For fig (II)</p> <ul style="list-style-type: none"> • Zero/ No force • Because direction of magnetic field and direction of movement of electron are same. <p style="text-align: center;">OR</p> <p>(B) (i)</p> <ul style="list-style-type: none"> • Direct contact between live and neutral wire • Insulation of electrical wires is damaged. • Overloading <p>(ii)</p> <ul style="list-style-type: none"> • No, • The fuse must be connected in series with live wire. <p>(iii) $P = VI$ $I = \frac{2200}{220} = 10A$ The minimum rating of the fuse should be slightly more than 10 A.</p>	<p>1</p> <p>$\frac{1}{2} + \frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p>	<p>5</p>
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