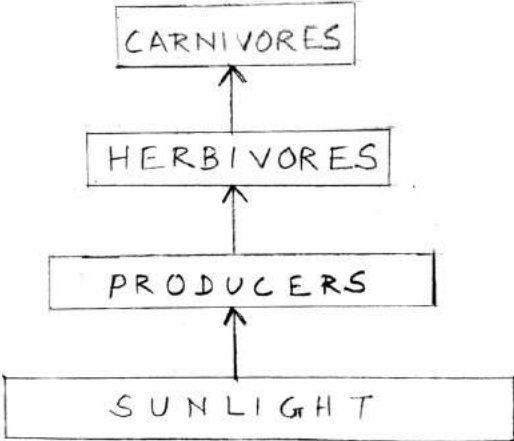
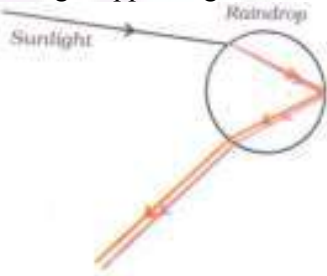
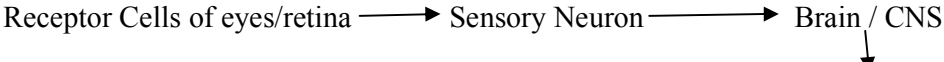


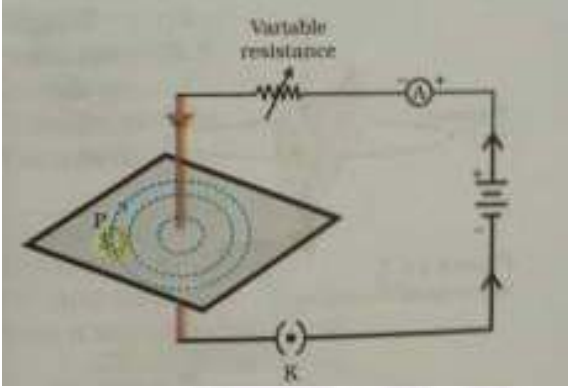
SET 31/ 1 / 3

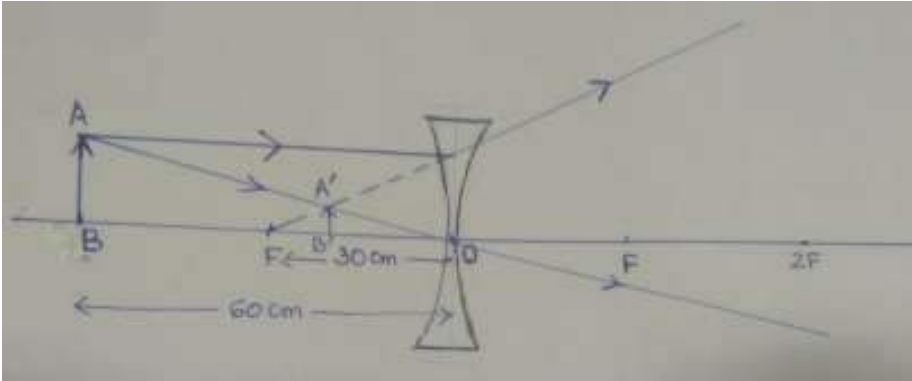
Q. No	Value Point/Expected Answer	Value	Total Marks
1.	<p style="text-align: center;">SECTION-A</p> <ul style="list-style-type: none"> • Fuel energy / microwave / hot plate / solar energy • Easily available <p style="text-align: right;">(Or any other source of energy with reason)</p>	1	1
2.	To measure potential difference across two points.	1	1
3.	<p style="text-align: center;">SECTION-B</p> <ul style="list-style-type: none"> • Image distance remains the same. • It is the distance between the eye lens and retina, which remains the same. 	1 1	2
4.	<ul style="list-style-type: none"> • (i) Pancreas act as a gland by secreting pancreatic juice which contains enzymes. • (ii) Secretes hormones like insulin / glucagon 	1 1	2
5.	<p>Modern periodic table consists of groups and periods. Where number of valence electrons determines the group and number of shells determines the period.</p> <p style="text-align: center;">OR</p> <p>(a) Group – 14, Period – 3 (b) Silicon Non – metallic / poor conductor of electricity (or any other property)</p>	1, 1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
6.	<p>Segregation of waste; Recycling; Composting: Reducing the use of non – biodegradable material: Reuse (Any Three)</p> <p style="text-align: center;">OR</p> <p>The system where all the living organisms in an area together interact with the non – living constituents of the environment.</p>	1x3 1	

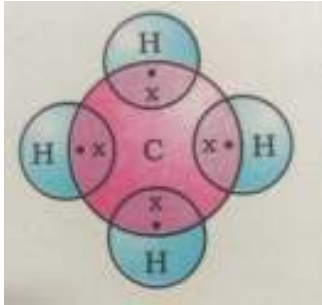
		2	3
7.	<p>Three advantages of exploiting resources with short term aims:</p> <p>(i) Immediate benefit to few people. (ii) Progress in science and technology for development in a country. (iii) Urbanisation and Industrialisation of an area.</p> <p>Three advantages of using a long time perspective:</p> <p>(i) Resources will be made available for sustainable development. (ii) Provides valuable contribution to the socio-economic development. (iii) Quality of environment will be conserved.</p>	$\frac{1}{2} \times 3$	3
8.	<p>Rainbow – A natural spectrum of sunlight appearing in the sky after a rain shower</p> 	1	3
9.	<p>For nervous and hormonal systems to control and coordinate in human beings, hypothalamus plays an important role in receiving the neural / nerve signals from brain and release hormones.</p> <p>Ex – In situation of iodine deficiency, hypothalamus releases hormones to stimulate pituitary gland, it further sends stimulating hormone to thyroid gland to secrete thyroxine that regulates carbohydrate metabolism.</p>	1	3
10.	<p>Receptor Cells of eyes/retina → Sensory Neuron → Brain / CNS</p> 		

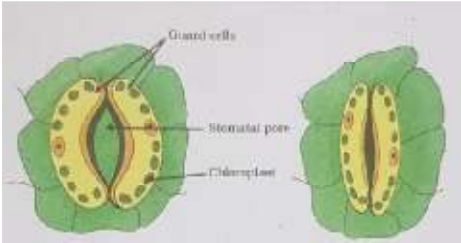
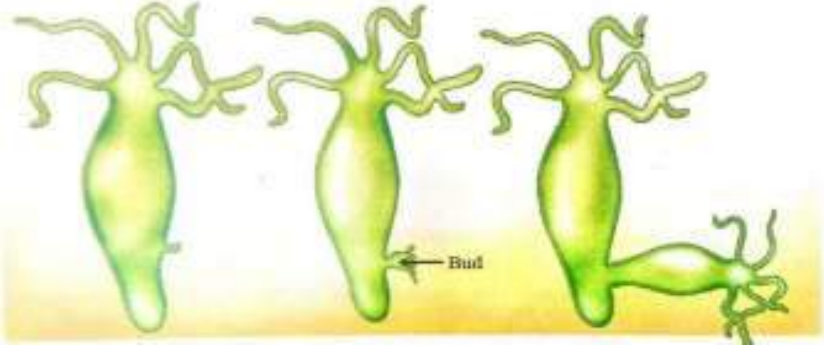
	Pupil contracts / Eye lids close/blink ←—— Eye Muscles ←—— Motor Neuron (Note: If a child writes spinal cord in place of brain give full credit to him/her)	½x6	3						
11.	A process in which green plants takes carbon dioxide and water and convert them into carbohydrates / food in the presence of sunlight and chlorophyll. Mechanism: (i) Absorption of light energy by chlorophyll. (ii) Conversion of light energy to chemical energy. (iii) Splitting of water molecules into hydrogen and oxygen. (iii) Reduction of carbon dioxide to carbohydrate.	1 ½ x 4	 3						
12.	<ul style="list-style-type: none"> Pea Plant / Garden pea / Pisum sativum F₁ – All tall; F₂- Tall and short Ratio – Tall : Short 3 : 1 / 1:2:1 OR <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Acquired Traits</th> <th style="width: 50%; text-align: center;">Inherited Traits</th> </tr> </thead> <tbody> <tr> <td>1. These traits are not transferred from one generation to the next generation</td> <td>1. These traits are transferred from one generation to the next</td> </tr> <tr> <td>2. They do not bring about change in DNA Example: Acquiring any skill</td> <td>2. They bring about changes in DNA Example: Eye colour</td> </tr> </tbody> </table> (or any other relevant point and example)	Acquired Traits	Inherited Traits	1. These traits are not transferred from one generation to the next generation	1. These traits are transferred from one generation to the next	2. They do not bring about change in DNA Example: Acquiring any skill	2. They bring about changes in DNA Example: Eye colour	1 ½ + ½ 1 1 1 1 1	 3
Acquired Traits	Inherited Traits								
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13.	<ul style="list-style-type: none"> White silver chloride turns grey in sunlight $2\text{AgCl} \xrightarrow{\text{Sunlight}} 2\text{Ag} + \text{Cl}_2$ Decomposition reaction / Photolytic decomposition OR <p>a) Displacement reaction $\text{Zn} + 2\text{AgNO}_3 \longrightarrow \text{Zn}(\text{NO}_3)_2 + 2\text{Ag}$</p> <p>b) Double displacement reaction $2\text{KI} + \text{Pb}(\text{NO}_3)_2 \longrightarrow \text{PbI}_2 + 2\text{KNO}_3$ (deduct ½ mark for non balanced equation)</p>	1 1 1 ½ 1 ½ 1	 3						
14.	i. A ₂ O – Valency of group one is 1 and of oxygen is 2 ii. AX ₃ – Valency of group 13 is 3 and of halogen is 1	½+½ ½+½							

	iii. AB ₂ - Valency of element A of group 2 is 2 and of element B of group seventeen is 1.	½+½	3
15.	(a) In molten state, due to heat the electrostatic forces of attraction between the oppositely charged ions are overcome. So ions move freely and conduct electricity. In aqueous solutions ions are free and conduct electricity. (b) Due to the formation of a coating of aluminium oxide / Al ₂ O ₃ . (c) Reactive metals like calcium and magnesium react easily with different elements and occur in the form of ores.	½ ½ 1 1	3
16	<p style="text-align: center;">SECTION -D</p> <p>a)</p> <p>From figure:</p> $I = I_1 + I_2 + I_3$ $I_1 = \frac{V}{R_1}, \quad I_2 = \frac{V}{R_2}, \quad I_3 = \frac{V}{R_3}$ $\therefore \frac{V}{R_p} = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$ $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ <p>b) $R_1 = R_2 = 12 \Omega$ $V = 6 V$</p> $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} = \frac{1}{12} + \frac{1}{12}$ $\therefore R_p = 6 \Omega$ $I = \frac{V}{R_p} = \frac{6V}{6\Omega} = 1A$ <p style="text-align: center;">OR</p> <p>a) $R = R_1 + R_2$ $= 20 \Omega + 4 \Omega = 24 \Omega$</p>	1 1 1 1 ½ ½	

	<p>b) $I = \frac{V}{R}$</p> $= \frac{6V}{24\Omega} = 0.25 \text{ A}$ <p>c) (i) For electric lamp: $V = IR$ $= \frac{6}{24} \times 20 = 5 \text{ V}$</p> <p>(ii) For Conductor: $V = IR$ $= \frac{6}{24} \times 4 = 1 \text{ V}$</p> <p>d) $P = VI$ $= 5 \text{ V} \times \frac{6}{24} \text{ A} = 1.25 \text{ W}$</p>	1 1 1 1	5
17 a)	 <p>Diagram : 1</p> <p>Direction : $\frac{1}{2}$</p> <ul style="list-style-type: none"> • Rule – Right hand thumb rule <p>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 the field lines of the magnetic field.</p> <p>b)</p> <ul style="list-style-type: none"> • Strength decreases • Reason - the concentric circles representing the magnetic field around a current-carrying straight wire become larger and longer as the distance increases. 	1 $\frac{1}{2}$ $\frac{1}{2}$ 1 1 1	5
18.	<p>i) $u = -60 \text{ cm}$ $f = -30 \text{ cm}$ $v = ?$</p> $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$		

	<p> $\therefore \frac{1}{v} = \frac{1}{f} + \frac{1}{u}$ $= \frac{1}{(-30 \text{ cm})} + \frac{1}{(-60 \text{ cm})} = \frac{-3}{60}$ $\therefore v = -20 \text{ cm}$ $m = v/u = \frac{-20 \text{ cm}}{-60 \text{ cm}} = \frac{1}{3}$ <p>ii) Nature:- Virtual Position:- 20 cm from lens on the same side as the object Size:- Diminished Erect/Inverted:- Erect</p> <p>(iii)</p>  </p>	<p> $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 </p>	<p>5</p>
<p>19.</p>	<ul style="list-style-type: none"> • Pollination – Transfer of pollen from anther / stamen to stigma of the flower • Type of Pollination – <ul style="list-style-type: none"> a) Self pollination – Transfer of pollen from anther / stamen to stigma occurs in the same flower b) Cross pollination – Pollen is transferred from anther / stamen of one flower to stigma of another flower • Agents of pollination – Wind, Water, Insects and Animals (any 2) • A tube grows out of the pollen grain and travels through the style, to reach the female germ cell in the ovary to cause fertilization <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Female reproductive system <ul style="list-style-type: none"> • Name of parts – <ol style="list-style-type: none"> 1: Fallopian tube/Oviduct 2: Ovary 3: Uterus 4: Cervix 5: Vagina • Method to avoid pregnancy • Advantages <ul style="list-style-type: none"> - Proper gap between two pregnancies - Avoiding unwanted pregnancy - Keeping population under control 	<p> 1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2} \times 5$ $\frac{1}{2}$ $\frac{1}{2} \times 3$ </p>	<p>5</p>

20.	<ul style="list-style-type: none"> • C₂H₅OH, Ethanol/Ethyl alcohol • Good solvent; used in medicines (Any other) <p>i) $2\text{C}_2\text{H}_5\text{OH} + 2\text{Na} \rightarrow 2\text{C}_2\text{H}_5\text{ONa} + \text{H}_2$</p> <p>Sodium ethoxide</p> <p>ii) $\text{C}_2\text{H}_5\text{OH} \xrightarrow[443\text{ K}]{\text{Hot Conc. H}_2\text{SO}_4} \text{CH}_2=\text{CH}_2 + \text{H}_2\text{O}$</p> <p>Ethene</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • CH₄/Simplest hydrocarbon <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Covalent bonds <ul style="list-style-type: none"> i) No ions or charged particles are formed ii) Due to weak covalent bonds • Carbon dioxide and water are produced/ $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$ 	<p>½ + ½</p> <p>½ + ½</p> <p>1</p> <p>½</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	5								
21.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Acid</th> <th style="width: 50%; text-align: center;">Base</th> </tr> </thead> <tbody> <tr> <td>1) An acid produces H⁺ ions in aqueous solution</td> <td>A base produces OH⁻ ions in aqueous solution</td> </tr> <tr> <td>2) Acids are sour in taste.</td> <td>Bases are bitter in taste</td> </tr> <tr> <td>3) Acids change the colour of blue litmus to red.</td> <td>Bases change the colour of red litmus to blue.</td> </tr> </tbody> </table> <p style="text-align: right;">(Any one)</p> <ul style="list-style-type: none"> • Neutralization – A reaction of an acid with a base to produce salt and water. <ul style="list-style-type: none"> (i) Acidic – $\text{NH}_4\text{OH} + \text{HCl} \rightarrow \text{NH}_4\text{Cl} + \text{H}_2\text{O}$ (ii) Basic – $\text{NaOH} + \text{H}_2\text{CO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{H}_2\text{O}$ (iii) Neutral – $\text{KOH} + \text{HNO}_3 \rightarrow \text{KNO}_3 + \text{H}_2\text{O}$ <p style="text-align: right;">(or any other example)</p>	Acid	Base	1) An acid produces H ⁺ ions in aqueous solution	A base produces OH ⁻ ions in aqueous solution	2) Acids are sour in taste.	Bases are bitter in taste	3) Acids change the colour of blue litmus to red.	Bases change the colour of red litmus to blue.	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	5
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SECTION - E			
22.	<ul style="list-style-type: none"> Substance taken: KOH Function: It absorbs CO₂ produced by the germinating seeds Consequence: The water level rises in the test tube dipped in the beaker / partial vacuum is created. 	$\frac{1}{2}$ $\frac{1}{2}$ 1	2
23.	<div style="text-align: center;">  <p>(Any one diagram with any two labellings)</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none">  <p>Drawing in proper sequence Labelling – Bud</p> </div>	1 $\frac{1}{2} \times 2$	2
24.	<p>Precautions:</p> <ol style="list-style-type: none"> 1) Lens should be held in vertical position with its faces parallel to the screen 2) Clear and sharpest image should be obtained by adjusting the position of lens 3) Three observations should be taken at least. 4) Base of lens, screen and measuring scale should be in straight line <p style="text-align: right;">(or any other)</p>	$\frac{1}{2} \times 4$	2
25.	<ul style="list-style-type: none"> Potential difference (V) is directly proportional to current (I) or $V \propto I$ Method: Finding slope of the graph <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> Measure the zero error 	1 1 1	

	<ul style="list-style-type: none"> Value of zero error should be adjusted to the observed values 	1	2
26.	<ul style="list-style-type: none"> In test tube A As distilled water contains no salts 	1 1	2
27.	<ul style="list-style-type: none"> Test Tube A It changes the colour from blue to red Hydrochloric acid turns blue litmus red. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> Brisk effervescence is produced $\text{Na}_2\text{CO}_3 + 2\text{HCl} \longrightarrow 2\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$ 	½ ½ 1 1 1	2

