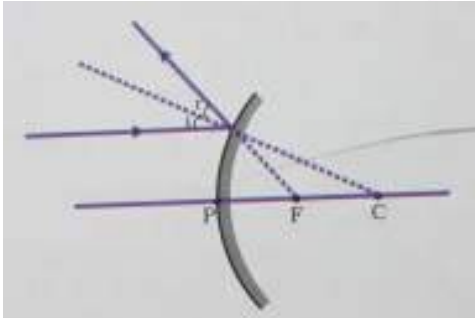
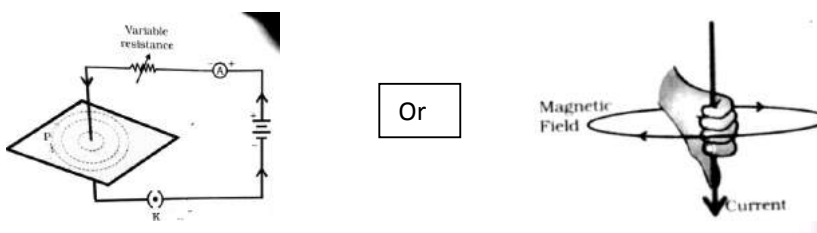
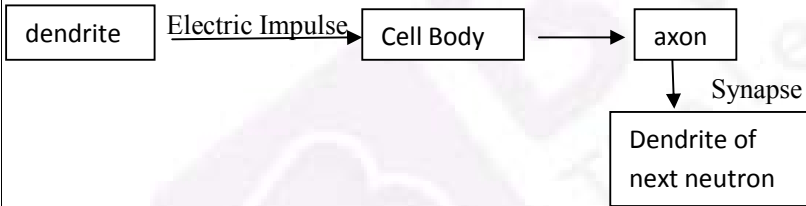


**SET 31/5/2**

Q.No	Value Point/Expected Answer	Value	Total Marks
1.	<ul style="list-style-type: none"> <li>• Volt</li> <li>• Voltmeter</li> </ul>	$\frac{1}{2}$ $\frac{1}{2}$	1
2.	<ul style="list-style-type: none"> <li>• It is less expensive .</li> <li>• It produces a large amount of heat.</li> <li>• It can be stored and transported easily.</li> <li>• It has high calorific value .</li> <li>• It is ecofriendly or do not cause pollution .</li> </ul> <p>( for any two correct answers)</p>	$\frac{1}{2} + \frac{1}{2}$	1
3.	<p style="text-align: center;"><b>SECTION-'B'</b></p> <div style="text-align: center;">  </div> <p>(i) draw mirror  (ii) Complete ray diagram  (iii) <math>\angle i</math> and <math>\angle r</math> is labelled  (iv) Arrows marked</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
4.	<ol style="list-style-type: none"> <li>The field lines emerge from north pole and merge at south pole.</li> <li>The magnetic field lines are stronger at poles.</li> <li>The magnetic field lines do not cross /intersect each other.</li> <li>The magnetic field lines are closed curves.</li> </ol>	$\frac{1}{2} \times 4$	2
5.	<ul style="list-style-type: none"> <li>• Brine – an aqueous solution of highly concentrated sodium chloride .</li> <li>• When electric current is passed through an aqueous solution of sodium chloride it decomposes to form sodium hydroxide, chlorine gas and water.</li> </ul> $2 \text{ NaCl (aq)} + 2 \text{ H}_2\text{O (l)} \longrightarrow 2 \text{ NaOH (aq)} + \text{ Cl}_2 \text{ (g)} + \text{ H}_2 \text{ (g)}$ <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>• Colour of the solution becomes blue – green due to formation of Copper (II) chloride.</li> </ul>	$\frac{1}{2}$ $\frac{1}{2}$  1  1	

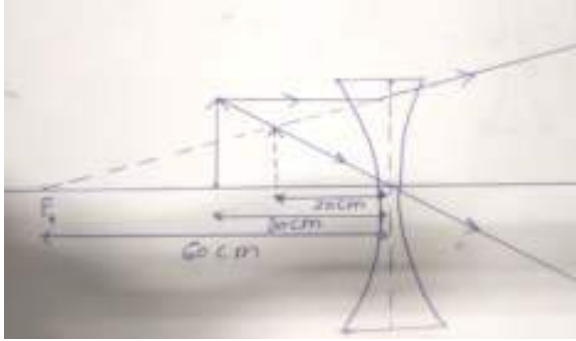


	$\frac{1}{f} = \frac{5}{24}$ $f = \frac{24}{5}$ $= 4.8 \text{ cm}$	$\frac{1}{2}$				
7.	 <p style="text-align: center;">Or</p> <ul style="list-style-type: none"> <li>• If the direction of the current and magnetic field is correctly represented then the marks should be allotted irrespective of complete circuit.</li> <li>• Right hand thumb rule: If the right hand thumb is representing the direction of current flowing through the straight current carrying conductor, then curl of finger will represent the direction of magnetic field.</li> <li>• If the direction of current in the conductor is vertically downwards then the direction of the magnetic field lines will be in clockwise direction.</li> </ul>	1 1 1	3			
8.	<ul style="list-style-type: none"> <li>• Sulphide Ore</li> <li>•           <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">           Sulphide Ore of medium reactivity metal            ↓            Roasting            ↓            Oxide of metal            ↓            Reduction to metal            ↓            Purification of metal         </td> <td style="width: 10%; text-align: center; vertical-align: middle;">Or</td> <td style="width: 40%; vertical-align: top;">           Sulphide Ore of Low reactivity metal            ↓            Roasting            ↓            Oxide of metal            ↓            Purification of metal         </td> </tr> </table> </li> </ul> <p style="text-align: center;">Award marks for any one of the flowcharts</p>	Sulphide Ore of medium reactivity metal ↓ Roasting ↓ Oxide of metal ↓ Reduction to metal ↓ Purification of metal	Or	Sulphide Ore of Low reactivity metal ↓ Roasting ↓ Oxide of metal ↓ Purification of metal	1 2	3
Sulphide Ore of medium reactivity metal ↓ Roasting ↓ Oxide of metal ↓ Reduction to metal ↓ Purification of metal	Or	Sulphide Ore of Low reactivity metal ↓ Roasting ↓ Oxide of metal ↓ Purification of metal				
9.	<p>(a) observations :</p> <ol style="list-style-type: none"> <li>changes from green to white.</li> <li>Formation of reddish brown Ferric oxide (<math>\text{Fe}_2\text{O}_3</math>)/ evolution of <math>\text{SO}_2</math> / <math>\text{SO}_3</math> gas.</li> </ol> <p>(b) Decomposition reaction</p> <p>(c) <math>2\text{FeSO}_4 \xrightarrow{\text{Heat}} \text{Fe}_2\text{O}_3 + \text{SO}_2 + \text{SO}_3</math>            Ferric oxide      Sulphur dioxide      Sulphur trioxide</p>	$\frac{1}{2} + \frac{1}{2}$  1  1				

	<p style="text-align: center;">Or</p> <p>(a) When copper is heated in air, oxidation takes place</p> <p>(b) CuO/Copper oxide</p> <p>(c) <math>2 \text{Cu} + \text{O}_2 \longrightarrow 2 \text{CuO}</math></p> <p>(d) On passing hydrogen gas over the heated material</p>	<p>1</p> <p>½</p> <p>1</p> <p>½</p>	3										
10.	<ul style="list-style-type: none"> <li>It consists of sodium hydrogen carbonate and tartaric acid</li> <li>Sodium hydrogen carbonate release carbon dioxide gas which makes cakes soft and fluffy and Tartaric acid neutralizes the bitter taste of the salt</li> <li><math>2\text{NaHCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}</math></li> </ul>	<p>1</p> <p>1</p> <p>1</p>	3										
11.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Blood</th> <th style="width: 50%;">Lymph</th> </tr> </thead> <tbody> <tr> <td>1. It is red coloured fluid because it contains RBC (haemoglobin)</td> <td>1. It is colourless fluid that do not contain RBC (haemoglobin)</td> </tr> <tr> <td>2. It flows in arteries, veins and capillaries.</td> <td>2. It flows in Lymph vessels.</td> </tr> <tr> <td>3. It carries absorbed nutrients, O<sub>2</sub>, CO<sub>2</sub> and nitrogenous waste etc.</td> <td>3. It carries digested and absorbed fat from intestine.</td> </tr> <tr> <td>4. It consists of Plasma ,RBC, WBC, Platelets .</td> <td>4. It consists of Plasma, Proteins and WBC.</td> </tr> </tbody> </table> <p style="text-align: center;">Any three correct answers</p>	Blood	Lymph	1. It is red coloured fluid because it contains RBC (haemoglobin)	1. It is colourless fluid that do not contain RBC (haemoglobin)	2. It flows in arteries, veins and capillaries.	2. It flows in Lymph vessels.	3. It carries absorbed nutrients, O <sub>2</sub> , CO <sub>2</sub> and nitrogenous waste etc.	3. It carries digested and absorbed fat from intestine.	4. It consists of Plasma ,RBC, WBC, Platelets .	4. It consists of Plasma, Proteins and WBC.	<p>1X3</p>	3
Blood	Lymph												
1. It is red coloured fluid because it contains RBC (haemoglobin)	1. It is colourless fluid that do not contain RBC (haemoglobin)												
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4. It consists of Plasma ,RBC, WBC, Platelets .	4. It consists of Plasma, Proteins and WBC.												
12.	 <p style="text-align: center;">This flow is unidirectional. (can award marks if student writes in a descriptive manner)</p>	<p>½ x6</p>	3										
13.	<p>Depending on the nature of variations, different individuals would have different kinds of advantages which enable them to survive and adapt in their environment.</p> <p><b>Example.</b> Suppose there were a population of bacteria living in temperate waters and if the water temperature were to be increased by global warming, most of these bacteria would die, but a few variants resistant to heat would survive and grow further. Variation is thus useful for the survival of species over time. (or any other relevant example).</p>	<p>1</p> <p>2</p>	3										
14.	<ul style="list-style-type: none"> <li>The series of living organisms taking part at various biotic level forms a food chain.</li> <li>Explanation : <ul style="list-style-type: none"> <li>(i) An average of 10% of the food eaten is turned into its own body and made available for the next level of consumers</li> <li>(ii) The energy that is captured by the autotrophs does not revert back to the solar input.</li> </ul> </li> </ul>	<p>1</p>											

	<p>(iii) The energy which is passed to the herbivores does not come back to the autotrophs.          (iv) As it moves progressively through the various trophic levels it is no longer available to the previous level</p> <p style="text-align: right;">[Any two]</p> <p style="text-align: center;">Or</p> <p>(a) Since interference will create disturbances in the protected area (National Park) / To maintain the self sustainability in the protected area.</p> <p>(b) Reuse of materials is better than recycling because</p> <ul style="list-style-type: none"> <li>• the process of recycling use some energy</li> <li>• in the reuse strategy things are used again and again. (If example is given then also award marks)</li> </ul>	<p>1+1</p> <p>1</p> <p>1+1</p>	<p>3</p>
15.	<ul style="list-style-type: none"> <li>• Global warming, melting of glaciers (any other appropriate answer)</li> <li>• - More efficient lighting (CFL, LED)              - Upgrade heating system              - use of public transport (metro, bus)              - Choosing renewable sources of energy              (or any other appropriate answers other than given here)</li> </ul>	<p>1</p> <p><math>\frac{1}{2} \times 4</math></p>	<p>3</p>
16.	<p style="text-align: center;">Section -D</p> <p><math>f = -60 \text{ cm}</math>   <math>h = 9 \text{ cm}</math>   <math>u = -30 \text{ cm}</math></p> <p>Lens formula : <math>\frac{1}{v} - \frac{1}{u} = \frac{1}{f}</math></p> $\frac{1}{v} = \frac{1}{f} + \frac{1}{u}$ $= \frac{-1}{60} + \left[\frac{-1}{30}\right]$ $= \frac{-1}{60} - \frac{1}{30}$ $\frac{1}{v} = \frac{-1-2}{60}$ <p><math>v = -20 \text{ cm}</math></p> $m = \frac{v}{u} = \frac{-20}{-30} = \frac{2}{3}$ $m = \frac{h'}{h} \Rightarrow h' = m \times h$ $= \frac{2}{3} \times 9$ <p><math>h' = 6 \text{ cm}</math></p>	<p>1</p> <p>1</p> <p>1</p>	

Image is : virtual, erect, smaller than object



1

1

17.

(A)

- $R = R_1 + R_2$   
 $R = 1\Omega + 2\Omega$   
 $R = 3\Omega$

 $\frac{1}{2}$  $\frac{1}{2}$ 

- $V = IR$   
 $I = \frac{V}{R}$   
 $I = \frac{6V}{3\Omega} = 2 \text{ Ampere or } 2 \text{ A}$

1

- $P = I^2 R$   
 $= 2 \times 2 \times 2$   
 $= 8 \text{ W}$

1

(B)  $P = \frac{V^2}{R}$   
 $P = \frac{4 \times 4}{2}$

1

1

$$P = 8 \text{ W}$$

OR

(i)  $P = 40 \text{ W}$   
 $V = 220 \text{ V}$   
 $P = VI$   
 $I = \frac{P}{V} = \frac{40 \text{ W}}{220 \text{ V}}$   
 $= 0.18 \text{ A}$

1

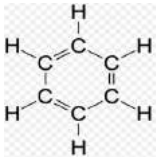
(ii)  $R = \frac{V^2}{P}$   
 $= \frac{220 \times 220}{40}$   
 $= 1210 \Omega$

1

(iii)  $P = 25 \text{ W}$   
 $V = 220 \text{ V}$   
 $P = VI$   
 $I = \frac{P}{V}$   
 $= \frac{25}{220} = 0.113 \text{ A}$

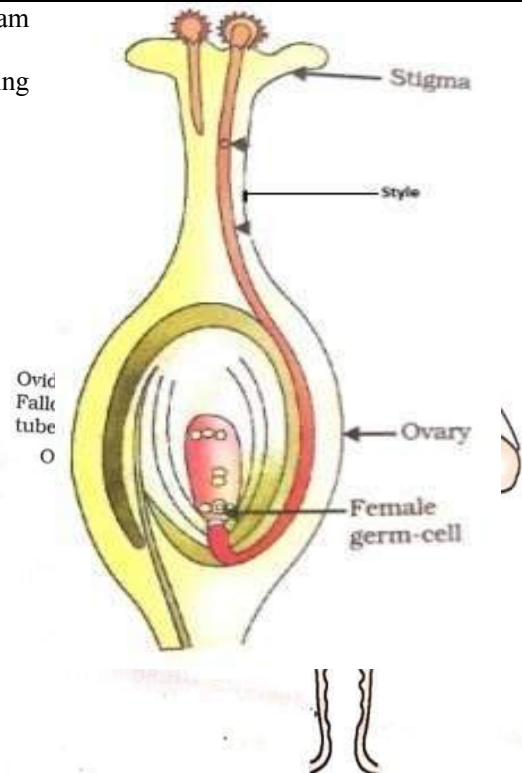

1

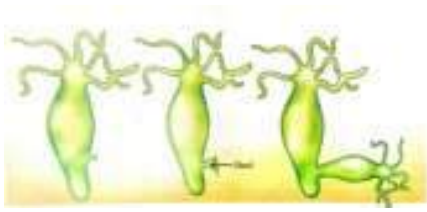
(iv)  $R = \frac{V^2}{P}$

	$= \frac{220 \times 220}{25}$ $= 1936 \Omega$	1	
	(v) Yes there is a change in current and resistance	1	5
18.	<p>(a)</p> <ul style="list-style-type: none"> <li>Carbon cannot form <math>C^{4+}</math> ions as very high energy is required to remove 4 electrons</li> <li>Carbon cannot gain 4 electrons to form <math>C^{4-}</math> ions as 6 protons cannot hold 10 electrons</li> </ul> <p>(i) Covalent compounds are bad conductor of electricity as they do not have free electrons.</p> <p>(ii) Due to weak forces of attraction between the molecules, thus less energy is required for breaking the bond.</p> <p>(b)</p>  <p style="text-align: center;">Or</p> <p>(a) Isomers are those compounds which have the same molecular formula but different structural formula</p> <p>(b)</p> <ul style="list-style-type: none"> <li>Propanal <math>CH_3CH_2CHO</math></li> <li>Propanone <math>CH_3COCH_3</math></li> </ul> <p>(c) (i) <math>CH_3CH_2OH \xrightarrow[\text{Conc. } H_2SO_4]{443 \text{ K}} H_2C=CH_2 + H_2O</math></p> <p>(ii) <math>CH_3CH_2OH \xrightarrow[\text{Heat}]{\text{Alkaline } KMnO_4} CH_3CH_2COOH + H_2O</math></p>	1 1 1 1 1 1 1+1 1+1	5
19.	<p>(a) Group: In modern periodic table vertical columns are known as 'Groups'. There are 18 groups.</p> <ul style="list-style-type: none"> <li>Valency – remains same</li> <li>Atomic Size – Increases from top to bottom in a group</li> <li>Metallic Character – Increases from top to bottom in a group</li> </ul> <p>(b) Atomic Number = 14 Electronic Configuration <math>\longrightarrow</math> K, L, M 2 8 4</p>	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1	5

	<ul style="list-style-type: none"> <li>It is metalloid or semi – metal</li> <li>It exhibits some properties of both metals and non – metal.</li> </ul>	$\frac{1}{2}$ 1									
20.	<p>(a) (i) Homologous organs: Which have similar basic structures but have different functions. e.g. Forelimbs of human and forelimbs of Lizard</p> <p>(ii) Analogous organs : Which have different basic structure but perform similar function. e.g. Wings of insect and Wings of bat</p> <p>(iii) Fossils are remains or impression of the dead animals and plants that lived in past. e.g. Archeopteryx or any other example.</p> <p>(b) Methods to determine the age of fossils:</p> <p>(i) Relativedating : Fossils we find closer to the surface are more recent than those in deeper layers</p> <p>(iii) Dating Fossils: Detecting the ratios of different isotopes of the same element (C )in the fossil.</p>	1  1  1  1  1	5								
21.	<p style="text-align: center;">Section –D</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 10%;">(a)</th> <th style="width: 40%;">Cross Pollination</th> <th style="width: 10%;"></th> <th style="width: 40%;">Self Pollination</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Pollen is transferred from anther/stamen of one flower to another flower.</td> <td>1.</td> <td>Transfer of pollen from anther/stamen to the stigma of the same flower.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>Site of fertilization – Ovary</li> <li>Product of fertilization – Zygote</li> </ul> <p>(b)</p>	(a)	Cross Pollination		Self Pollination	1.	Pollen is transferred from anther/stamen of one flower to another flower.	1.	Transfer of pollen from anther/stamen to the stigma of the same flower.	1  $\frac{1}{2}$ $\frac{1}{2}$	
(a)	Cross Pollination		Self Pollination								
1.	Pollen is transferred from anther/stamen of one flower to another flower.	1.	Transfer of pollen from anther/stamen to the stigma of the same flower.								



<p>(a)</p>	<p>Correct diagram Correct labelling</p>  <p>OR</p> <p>Ovid Fallopian tube O</p> <p>Stigma</p> <p>Style</p> <p>Ovary</p> <p>Female germ-cell</p> <p>Correct diagram</p> <p>i. Ovary ii. Oviduct or fallopian tube</p> <p>(b) Syphilis and Gonorrhoea</p> <p>(c) Chemicals or materials required to avoid pregnancy</p> <p>(i) Controlling human population (ii) To maintain good reproductive health (iii) Maintain gaps between successive birth</p> <p>} any two</p>	<p>1 <math>\frac{1}{2} \times 4</math></p> <p>1 <math>\frac{1}{2} + \frac{1}{2}</math></p> <p>1</p> <p>1 <math>\frac{1}{2} \times 2</math></p>	<p>5</p>
<p>22.</p>	<p>Section -E</p>  <p>Plumule</p> <p>Cotyledon</p> <p>Radicle</p> <p>Diagram, Labelling</p>	<p><math>\frac{1}{2} + 1\frac{1}{2}</math></p>	

	OR		
		Diagram 1	
	Process – Budding	1	2
23.	<ul style="list-style-type: none"> <li>• Safranin is used to stain/colour the material for better view.</li> <li>• Glycerine prevents the leaf peel from getting it dried.</li> </ul>	1 1	2
24.	<ul style="list-style-type: none"> <li>• No change/ An acid turns blue litmus to red ,so there is a need of blue litmus paper. To convert the blue litmus paper dip the red litmus paper into a basic solution and got blue litmus.</li> </ul> <p style="text-align: center;">OR</p> <p>(i) Sodium hydrogen carbonate (<math>\text{NaHCO}_3</math>) or Sodium Carbonate (<math>\text{Na}_2\text{CO}_3</math>)</p> <p>(ii) <math>2\text{CH}_3\text{COOH} + \text{Na}_2\text{CO}_3 \longrightarrow 2 \text{CH}_3\text{COONa} + \text{H}_2\text{O} + \text{CO}_2</math>  or  <math>\text{CH}_3\text{COOH} + \text{NaHCO}_3 \longrightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O} + \text{CO}_2</math></p> <p>(iii) Liberated <math>\text{CO}_2</math> is passed through lime water, which is turned to milky.</p>	2  $\frac{1}{2}$ 1  $\frac{1}{2}$	2
25.	<p>The solution turns</p> <ol style="list-style-type: none"> <li>green to colourless</li> <li>black coating is formed on Zinc</li> </ol> <p>Reason : Zinc is more reactive than iron so it displaces the iron from its salt solution .</p>	$\frac{1}{2} + \frac{1}{2}$ 1	2
26.	<p>(c) (20 cm, 20 cm) and (inverted and inverted)</p> <p>Reason: Only real and inverted image can be obtained on the screen and in both cases the image is formed at the principal focus.</p>	1 1	2
27.	<p>38 mA, 3.2 V</p> <p style="text-align: center;">Or</p> <p>(i) <math>V \propto I</math></p>	1+1 1	2

	(ii) at 2.5 V current will be 0.25 A	1	
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