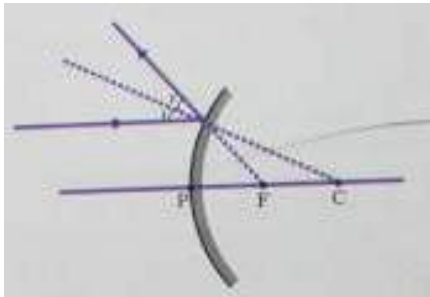
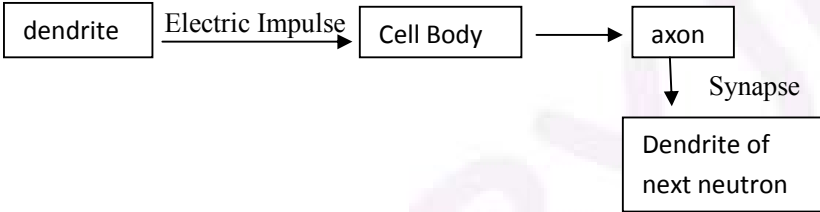
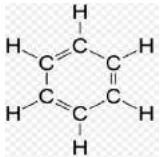


SET 31 / 5 / 1.

Q.No	Value Point/Expected Answer	Value	Total Marks
1.	SECTION – ‘A’		
	Ohm’s law states that potential difference(V) is directly proportional to the current (I) flowing through the conductor provided the all physical conditions (temperature etc.) remains constant.	1	1
2.	i. Nitrogen ii. Phosphorous	½ ½	1
3.	SECTION-‘B’		
			
	(i) draw mirror. (ii) Complete ray diagram (iii) $\angle i$ and $\angle r$ islabelled (iv) Arrows marked	½ ½ ½ ½	2
4.	(a) More deflection in compass needle ,Magnetic field is increased. (b) Less deflection in compass needle, Magnetic field is reduced/decreased.	1 1	2
5.	<ul style="list-style-type: none"> Acetic acid (CH_3COOH) is a weak acid because it has less concentration of hydronium ion ($\text{H}_3\text{O}^+/\text{H}^+$) eg. Zinc granules react with dil HCl very vigourously and liberate Hydrogen gas but in case of acetic acid, it reacts slowly to liberate hydrogen gas. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> Sodium hydrogen carbonate (NaHCO_3) is a basic salt because NaHCO_3 is a combination of strong base and weak acid. $2\text{NaHCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}$ 	1 1 1 1	2
6.	SECTION -‘C’		
	<ul style="list-style-type: none"> The branch of biology which deals with the study of heredity and variation. 	1	

	<ul style="list-style-type: none"> $2\text{Na HCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}$ 	1	3
11.	<p>(a)</p> <ul style="list-style-type: none"> It will show deflection Change in magnetic field lines associated with coil Q gives induced current <p>(b)</p> <ul style="list-style-type: none"> No deflection Because there is no change in magnetic field lines associated with coil 'Q'. So no induced current. 	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1	3
12.	<p>(a)</p> <ul style="list-style-type: none"> Xylem vessels and Xylem tracheids At the roots, cells in contact with the soil actively take up ions. Creates a difference in concentration of ions So water moves up. <p>(b) Plants do not move and have large proportion of dead cells in many tissues. Thus plants have low energy needs.</p>	1 1 1	3
13.	 <p>This flow is unidirectional. (can award marks if student writes in a descriptive manner)</p>	$\frac{1}{2} \times 6$	3
14.	<ul style="list-style-type: none"> Global warming, melting of glaciers (or any other appropriate answer) - More efficient lighting (CFL or LED) - Upgrade heating system - Use of public transport (metro, bus) - Choosing renewable sources of energy (or any other) 	1 $\frac{1}{2} \times 4=2$	3
15	<ul style="list-style-type: none"> Carbonate ore Zinc Carbonate Calcination $\text{ZnCO}_3 \xrightarrow[\text{In limited supply of air}]{\text{Heat}} \text{ZnO} + \text{CO}_2$ Reduction: $\text{ZnO} + \text{C} \longrightarrow \text{Zn} + \text{CO}$ 	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3
16.	SECTION- 'D'		
	<p>(a)</p> <ul style="list-style-type: none"> Carbon cannot form C^{4+} ions as very high energy is required to remove 4 electrons. Carbon cannot gain 4 electrons to form C^{4-} ions as 6 protons cannot hold 10 electrons. 	1 1	

	<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 bonds.</p> <p>(b)Structure of Benzene</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"> • Propanal----- $\text{CH}_3\text{CH}_2\text{CHO}$ • Propanone----- CH_3COCH_3 <p>(c) (i) $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{Conc. H}_2\text{SO}_4]{443\text{ K}} \text{H}_2\text{C}=\text{CH}_2 + \text{H}_2\text{O}$</p> <p>(ii) $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{Heat}]{\text{Alkaline KMnO}_4} \text{CH}_3\text{CH}_2\text{COOH} + \text{H}_2\text{O}$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1+1</p> <p>1+1</p>	<p>5</p>
17.	<p>$f = 20\text{ cm}$, $u = -30\text{ cm}$</p> <p>(a)</p> <p>(i) $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$</p> $\frac{1}{v} - \frac{1}{-30} = \frac{1}{20}$ $\frac{1}{v} + \frac{1}{30} = \frac{1}{20}$ $\frac{1}{v} = \frac{1}{20} - \frac{1}{30}$ $\frac{1}{v} = \frac{3-2}{60}$ $\frac{1}{v} = \frac{1}{60}$ <p>$v = 60\text{ cm}$</p> <p>(ii) Real, inverted and magnified</p> <p>(iii) $m = \frac{v}{u}$</p> $m = \frac{60}{-30}$ $m = -2$ $h' = m \times h$	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$1\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>	

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

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

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

(iv) $R = V^2/P$
 $= \frac{220 \times 220}{25}$
 $= 1936 \Omega$

(v) Yes there is a change in current and resistance

1

1

1

1

1

5

20.

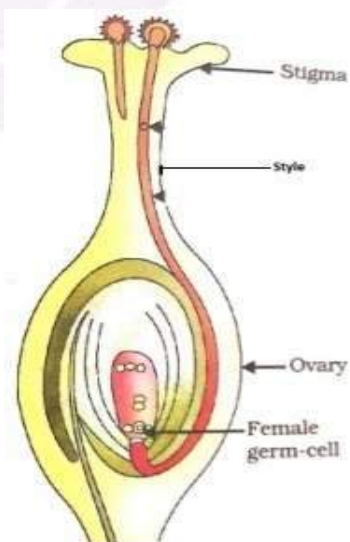
(a)	Cross Pollination		Self Pollination
1.	Pollen is transferred from anther/stamen of one flower to the stigma of another flower.	1.	Transfer of pollen from anther/stamen to the stigma of the same flower.

- Site of fertilization – Ovary

- Product of

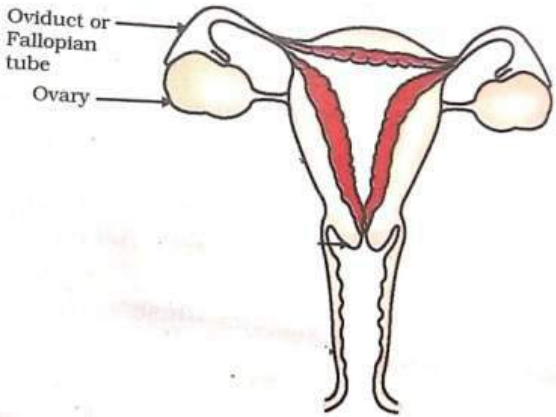
fertilization – Zygote


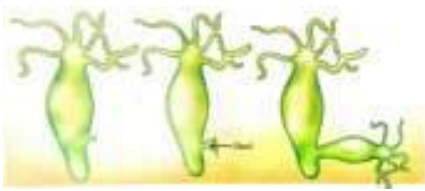
(b)



1

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

	<p style="text-align: right;">Correct diagram 1</p> <p style="text-align: right;">Correct labelling $\frac{1}{2} \times 4 = 2$</p> <p style="text-align: center;">OR</p> <div style="text-align: center;">  </div> <p>Correct diagram</p> <p>(i) Ovary</p> <p>(ii) Oviduct or fallopian tube</p> <p>(b) Syphilis and Gonorrhoea</p> <p>(c) Chemicals or materials required to avoid pregnancy</p> <ul style="list-style-type: none"> • Reasons for adopting contraceptive devices are – <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(i) Controlling human population</td> <td rowspan="3" style="font-size: 3em; vertical-align: middle;">}</td> <td rowspan="3" style="vertical-align: middle;">any two</td> </tr> <tr> <td>(ii) To maintain good reproductive health</td> </tr> <tr> <td>(iii) Maintain gaps between successive birth</td> </tr> </table>	(i) Controlling human population	}	any two	(ii) To maintain good reproductive health	(iii) Maintain gaps between successive birth	<p style="text-align: center;">1</p> <p style="text-align: center;">$\frac{1}{2} + \frac{1}{2}$</p> <p style="text-align: center;">$\frac{1}{2} + \frac{1}{2}$</p> <p style="text-align: center;">1</p> <p style="text-align: center;">$\frac{1}{2} \times 2 = 1$</p>	5
(i) Controlling human population	}	any two						
(ii) To maintain good reproductive health								
(iii) Maintain gaps between successive birth								
21.	<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 are those 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 the past. e.g. Archeopteryx or any other example</p> <p>(b) Methods to determine the age of fossils:</p> <p>(i) Relative dating: Fossils which are found closer to the surface are more recent than those in deeper layers.</p> <p>(ii) Dating Fossils: Detecting the ratios of different isotopes of the same element (C) in the fossil.</p>	<p style="text-align: center;">$\frac{1}{2} + \frac{1}{2}$</p> <p style="text-align: center;">$\frac{1}{2} + \frac{1}{2}$</p> <p style="text-align: center;">$\frac{1}{2} + \frac{1}{2}$</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p>	5					
22.	SECTION - 'E'							

	<p>The solution turns</p> <ol style="list-style-type: none"> green to colourless and black coating is formed on Zinc . <p>Reason : Zinc is more reactive than iron so it displaces the iron from its salt solution .</p>	<p>$\frac{1}{2} + \frac{1}{2}$</p> <p>1</p>	<p>2</p>
23.	<ul style="list-style-type: none"> No change / As acid turns blue litmus to red , so there is a need of blue litmus paper . To get the blue litmus dip the red litmus paper into a basic solution and get blue colour . <p>OR</p> <p>(i) Sodium hydrogen carbonate (NaHCO_3) or Sodium Carbonate (Na_2CO_3)</p> <p>(ii) $2\text{CH}_3\text{COOH} + \text{Na}_2\text{CO}_3 \longrightarrow 2\text{CH}_3\text{COONa} + \text{H}_2\text{O} + \text{CO}_2$ or $\text{CH}_3\text{COOH} + \text{NaHCO}_3 \longrightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O} + \text{CO}_2$</p> <p>(iii) Liberated CO_2 is passed through lime water, which is turned to milky.</p>	<p>2</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p>	<p>2</p>
24.	<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>	<p>1</p> <p>1</p>	<p>2</p>
25.	<p>(i) 38mA, 3.2 V</p> <p>Or</p> <p>(i) $V \propto I$ (ii) at 2.5 V current will be 0.25 A</p>	<p>1+1</p> <p>1</p> <p>1</p>	<p>2</p>
26.	<ul style="list-style-type: none"> Safranin is used to stain/colour the material for better view. Glycerine prevents the leaf peel from getting it dried. 	<p>1</p> <p>1</p>	<p>2</p>
27.	 <p>OR</p> 	<p>Correct Diagram and Labelling $\frac{1}{2} + \frac{1}{2}$</p> <p>Diagram 1</p> <p>Process – Budding 1</p>	<p>2</p>