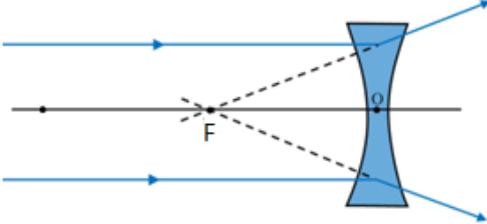
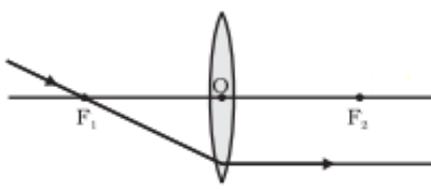
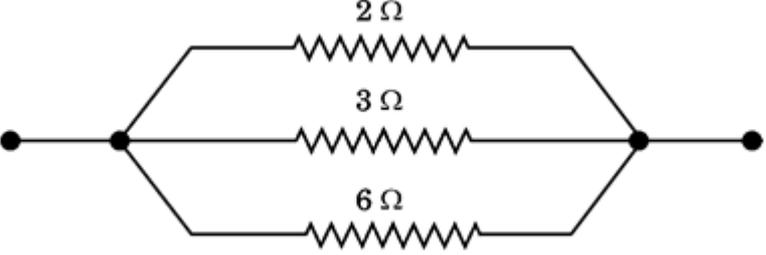
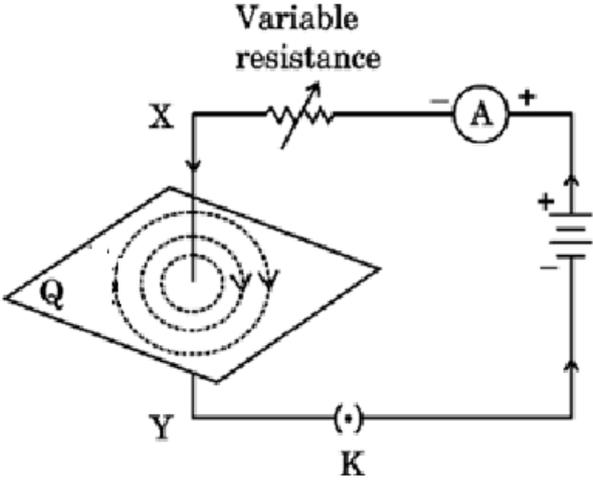
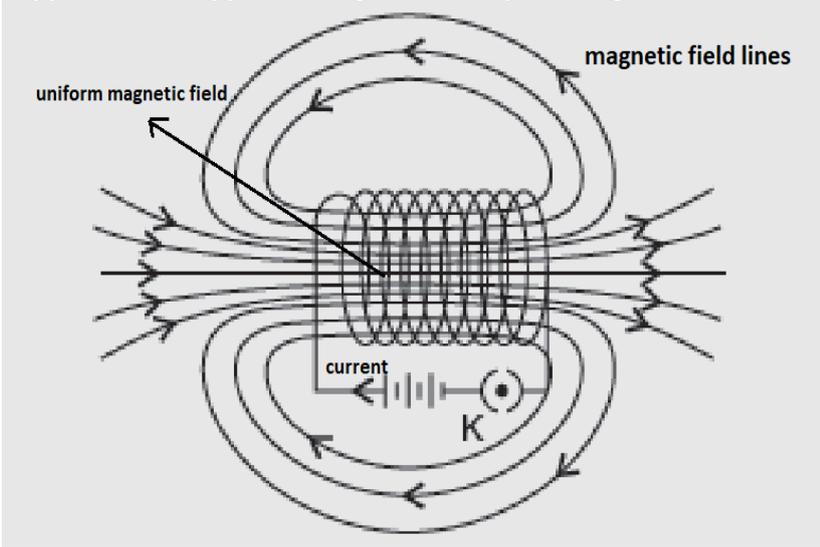
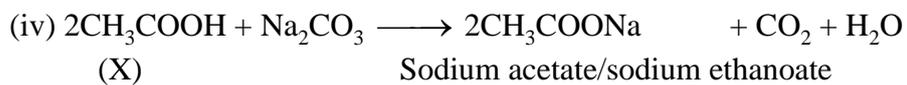


23.	<ul style="list-style-type: none"> • Movement of voluntary muscles (walking, writing) • Thinking • Hearing • Sight <p>(or any other relevant explanation)</p>	2	2
24.	<p>(a) (i) Protects the seed</p> <p>(ii) Food storage area of the seed/ reserve food material</p> <p>(iii) Develops into root on germination of seed/future root</p> <p>(iv) Develops into shoot on germination of seed/future shoot</p> <p>OR</p> <p>(b) In a test tube take 10g sugar, add 100 ml of water and a pinch of yeast granules. Keep it in warm place for 1-2 hours.</p>	<p>½</p> <p>½</p> <p>½</p> <p>½</p> <p>2</p>	2
25.	<p>(a) Concave lens</p>  <p>OR</p> <p>(b) (i)</p>  <p>(ii) Principal focus /Focus</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	2
26.	<ul style="list-style-type: none"> • An electric fuse is placed in series with the device. • Electric fuse is used to prevent the electric circuit from a possible damage by stopping the flow of unduly high electric current. If current larger than the specified value flows through the circuit, the fuse melts and breaks the electric circuit. 	<p>½</p> <p>1½</p>	2
SECTION C			
27.	<p>(a) (i) A single reactant (substance) breaks down to give two or more products.</p>	½	

	<ul style="list-style-type: none"> • $\text{CaCO}_3(\text{s}) \xrightarrow{\text{Heat}} \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$ • $2\text{AgCl}(\text{s}) \xrightarrow{\text{Sunlight}} 2\text{Ag}(\text{s}) + \text{Cl}_2(\text{g})$ • $2\text{H}_2\text{O}(\text{l}) \xrightarrow[\text{Current}]{\text{Electric}} 2\text{H}_2(\text{g}) + \text{O}_2(\text{g})$ (any other suitable example) <p>(ii) because energy (heat) is released.</p> <p style="text-align: center;">OR</p> <p>(b)</p> <ul style="list-style-type: none"> • In combination reaction single product (substance) is formed from two or more reactants (substances) whereas in decomposition reaction a single reactant (substance) breaks down to give two or more products (substances). So, the two are opposite. • Example of combination reaction $\begin{array}{ccccccc} \text{C}(\text{s}) & + & \text{O}_2(\text{g}) & \longrightarrow & \text{CO}_2(\text{g}) & + & \text{Heat} \\ \text{Carbon} & & \text{Oxygen} & & \text{Carbon dioxide} & & \end{array}$ • Example of decomposition reaction $\begin{array}{ccccccc} \text{CaCO}_3(\text{s}) & \xrightarrow{\text{Heat}} & \text{CaO}(\text{s}) & + & \text{CO}_2 & & \\ \text{Calcium carbonate} & & \text{Calcium Oxide} & & \text{Carbon dioxide} & & \end{array}$ <p style="text-align: center;">(any other suitable example) (do not deduct marks if physical state not given)</p>	<p>½</p> <p>½</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	3
28.	<p>(a) X – Basic Y – Acidic</p> <p style="text-align: center;">↓ ↓</p> <p>pH range 9 – 11 pH range 4 – 6</p> <p>(b) ‘A’ – metal, because it forms basic oxide.</p>	<p>½×4</p> <p>½+½</p>	3
29.	<p>(a) Hormones are chemical messengers (substances) which regulate body functions / Hormones are the biochemical substances produced in one part of the body and move to the target organ or tissue to regulate body function.</p> <p>(b) Example:</p> <p>If the sugar level in blood rises, it is detected by cells of pancreas which respond to produce more insulin to lower blood sugar level.</p> <p>As the blood sugar level falls, it is detected by the cells of pancreas and insulin secretion is reduced.</p> <p style="text-align: center;">(or any other example)</p>	<p>1</p> <p>2</p>	3

	<p>(ii)</p>  <p>In parallel, $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$</p> $= \frac{1}{2} + \frac{1}{3} + \frac{1}{6}$ $= \frac{3+2+1}{6}$ $R_p = 1.0 \Omega$	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>3</p>	
33.	<ul style="list-style-type: none"> • Biological magnification • Reason: These chemicals are not biodegradable and they get accumulated over successive trophic levels. Since, human beings occupy the top level in a food chain, they are affected the most. 	<p>1</p> <p>2</p> <p>3</p>	
SECTION D			
34.	<p>(a) (i)</p>  <p>(ii) Right hand thumb rule</p> <p>Statement of the rule - Imagine holding a current carrying straight conductor in the right hand such that the thumb points towards the direction of current, then the fingers will wrap around the conductor in the direction of the field lines of the magnetic field.</p>	<p>$1\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p>	

	<p>(iii)</p> <ul style="list-style-type: none"> • According to Fleming's left-hand rule, 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. • Out of the plane/ upwards <p style="text-align: center;">OR</p> <p>(b) (i) Solenoid is a coil of many turns of insulated copper wire wrapped closely in the shape of a cylinder.</p>  <p style="text-align: right;">Diagram</p> <p style="text-align: right;">Marking (i), (ii) and (iii)</p> <p>(ii) By inserting a piece of magnetic material like soft iron inside the current carrying solenoid.</p>	<p>1</p> <p>1</p> <p>1</p> <p>1½</p> <p>½ × 3</p> <p>1</p>	<p>5</p>
35.	<p>(a) (i) X - Ethanoic acid/ Acetic acid</p> $ \begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} - \text{C} \begin{array}{l} \nearrow \text{O} \\ \searrow \text{OH} \end{array} \\ \\ \text{H} \end{array} $ <p style="text-align: center;">/ CH₃COOH</p> <p>(ii) pH of 'X' will be higher than that of a mineral acid.</p> <p>(iii) Esterification reaction</p> $ \text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{OH} \xrightleftharpoons{\text{Acid}} \text{CH}_3\text{-COOCH}_2\text{CH}_3 + \text{H}_2\text{O} $ <p style="text-align: center;">(X)</p> <p style="text-align: center;">(or reaction with any other alcohol)</p>	<p>½</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p>	



1
1/2

(balancing of equation is not mandatory)

OR

(b) (i)

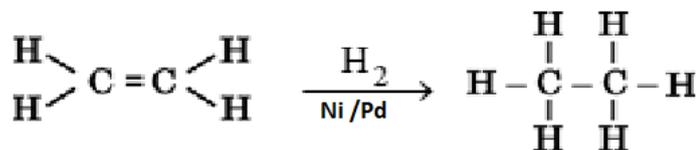
Saturated hydrocarbons	Unsaturated hydrocarbons
Compounds which have single covalent bond between all carbon atoms. / Compounds with general formula $\text{C}_n\text{H}_{2n+2}$	Compounds which have at least one double or triple bond between carbon and carbon atom. / Compounds with general formula C_nH_{2n} and $\text{C}_n\text{H}_{2n-2}$
Example – Propane $\begin{array}{c} \text{H} \quad \text{H} \quad \text{H} \\ \quad \quad \\ \text{H} - \text{C} - \text{C} - \text{C} - \text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \end{array}$ / $\text{CH}_3\text{CH}_2\text{CH}_3$ (any other)	Example – Propene- $\text{CH}_2=\text{CH}-\text{CH}_3$ / $\begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} = \text{C} - \text{C} - \text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \end{array} /$ Propyne $\text{H} - \text{C} \equiv \text{C} - \text{C} - \text{H}$ $\begin{array}{c} \text{H} \\ \\ \text{H} - \text{C} \equiv \text{C} - \text{C} - \text{H} \\ \\ \text{H} \end{array}$ (any other)

1

1

(ii)

- Addition of hydrogen in presence of Ni or Pd / Hydrogenation /



1

(or any other)

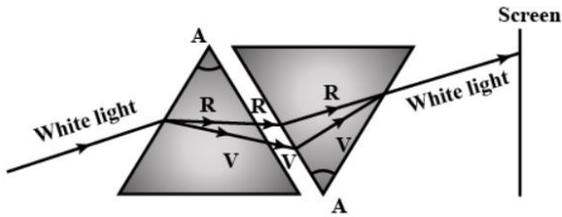
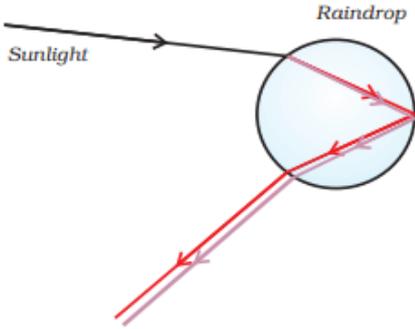
- It is used in the hydrogenation of vegetable oil.

1

(iii) Butene

1/2

	$ \begin{array}{cccc} \text{H} & \text{H} & \text{H} & \text{H} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}=\text{C} & / & \text{H}-\text{C}-\text{C}=\text{C}-\text{C}-\text{H} \\ & & & \\ \text{H} & & \text{H} & \text{H} \end{array} $	1/2	5
36	<p>(a)</p> <p>(i) Animals (Herbivores) eating grass need a longer small intestine to digest cellulose. Meat is easier to digest, hence meat eating animals (Carnivores) have shorter small intestine.</p> <p>(ii) Role of Pancreas – Secrete pancreatic juice which contains trypsin for digesting proteins, lipase for breaking down emulsified fats. Role of Bile- Bile emulsifies fats and makes the medium alkaline in the small intestine so that pancreatic enzymes can act.</p> <p>(iii) The inner lining of the small intestine has numerous finger-like projections called villi which increase the surface area for absorption of food. The villi are richly supplied with blood vessels which take the absorbed food to each and every cell of the body.</p> <p style="text-align: center;">OR</p> <p>(b) (i) ‘Rings of cartilage’ ensures that the air passage does not collapse in absence of air.</p> <p>(ii) Ribs are lifted → Diaphragm flattens → Chest cavity become larger → Air is sucked into the lungs (Alveoli) and we breathe in</p> <p>(iii) Due to lack of oxygen in our muscle cells (anaerobic respiration), pyruvate is converted into lactic acid, build-up of lactic acid in our muscles causes cramps.</p>	2 1 1 1 1 2 2	5
SECTION E			
37.	<p>(a) Oviduct/ fallopian tube</p> <p>(b) The lining of uterus thickens (it becomes spongy) and is richly supplied with blood to nourish the growing embryo.</p> <p>(c) (i) The uterine lining slowly breaks down and comes out as blood and mucous along with unfertilized egg. Hence, menstruation will occur. .</p> <p style="text-align: center;">OR</p> <p>(c) (ii) With the help of special tissue called Placenta which is embedded in uterine wall. It provides oxygen, nutrients from mother to embryo.</p>	1 1 2 2	4
38.	<p>(a) Dispersion of light</p> <p>(b) Different colours of light bend through different angles with respect to the incident ray as they pass through a prism.</p> <p>(c) (i) Two identical prisms are placed in inverted position with respect to each other as shown. When spectrum produced by prism A is passed through the prism B, a beam of white light emerges from the other side of the prism B.</p>	1 1 2	

	 <p>(award full marks even if only labelled ray diagram is given)</p> <p style="text-align: center;">OR</p> <p>(c) (ii)</p>  <p style="text-align: center;">(deduct ½ marks if arrows are not marked)</p>	2	4
39.	<p>(a) P – pH 0 to 4 Q – pH 12 to 14</p> <p>(b) (i) By adding sodium hydroxide (or any other base) (ii) By adding hydrochloric acid (or any other mineral or strong acid)</p> <p>(c)</p> <p>(i) • Hydronium ion ($\text{H}_3\text{O}^+/\text{H}^+$) ion concentration increases.</p> <p style="padding-left: 40px;">• Colour will change from yellow/orange to red/pink</p> <p style="text-align: center;">OR</p> <p>(c) (ii) • low pH/ between 1 to 3</p> <p style="padding-left: 40px;">• by the use of antacids/milk of magnesia/sodium hydrogen carbonate</p> <p style="padding-left: 40px;">• Magnesium hydroxide/$\text{Mg}(\text{OH})_2$</p>	<p>½</p> <p>½</p> <p>½</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>½</p> <p>½</p>	4