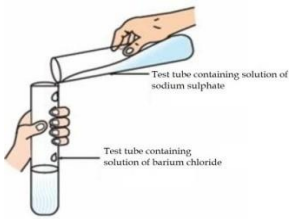
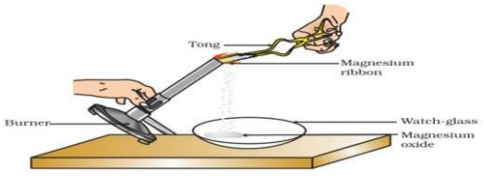
SAMPLE QUESTIONS
Subject : Science
Class X

These are purely sample questions for class X Science course. The type of questions in both Internal Examinations as well as final Board Examinations will likely be of the nature given in this sample paper. But the questions and texts/statements will be different in both internal as well as Board Examination. Topics are chapter wise. Marks of questions are indicative only. Suggestions for any change/ improvement will be appreciated which may be sent to samplepaperseba@gmail.com

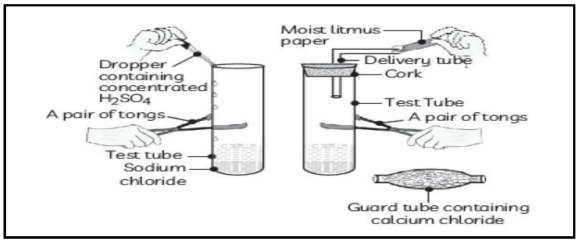
Source: Central Board of Secondary Education (CBSE)

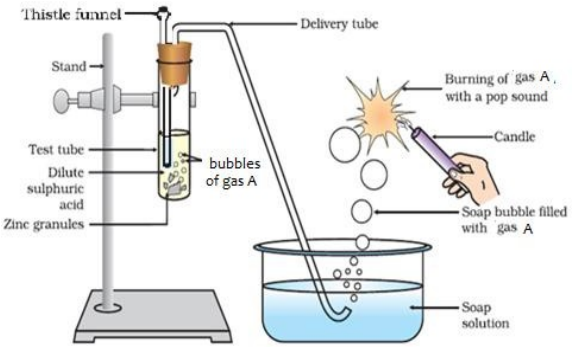
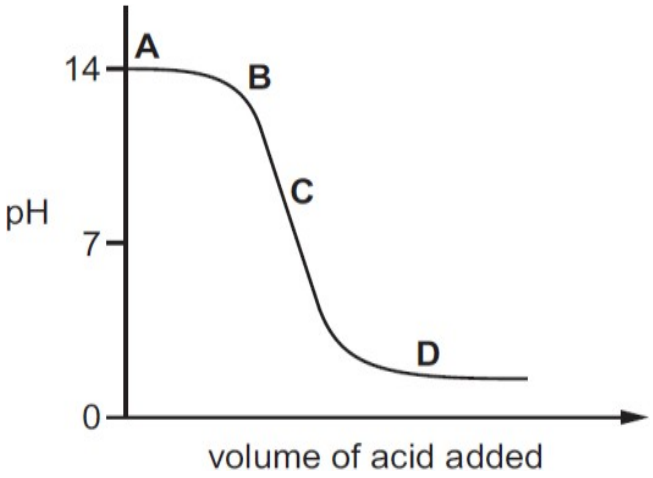
Q.NOS	QUESTIONS	MARKS(approx.)
	CHAPTER-1	
	SECTION - A	
1	 Identify the product which represents the solid state in the above reaction. a) Barium chloride b) Barium sulphate c) Sodium chloride d) Sodium sulphate	1
2	The colour of the solution observed after 30 minutes of placing zinc metal to copper sulphate solution is a) Blue b) Colourless c) Dirty green d) Reddish Brown	1
3	In the redox reaction $MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$ (a) MnO_2 is reduced to $MnCl_2$ & HCl is oxidized to H_2O (b) MnO_2 is reduced to $MnCl_2$ & HCl is oxidized to Cl_2 (c) MnO_2 is oxidized to $MnCl_2$ & HCl is reduced to Cl_2 (d) MnO_2 is oxidized to $MnCl_2$ & HCl is reduced to H_2O	1
4	 Which of the following is the correct observation of the reaction shown in the above set up? (a) Brown powder of Magnesium oxide is formed. (b) Colourless gas which turns lime water milky is evolved.	1

	(c) Magnesium ribbon burns with brilliant white light. (d) Reddish brown gas with a smell of burning Sulphur has evolved.	
5	With the reference to four gases CO_2,CO, Cl_2 and O_2, which one of the options in the table is correct? (a) CO, Cl_2, O_2, CO (b) CO_2, Cl_2, CO_2, CO (c) CO_2, O_2, O_2, CO_2, (d) CO, O_2, CO_2, CO_2 **N.B. - This question is also related to Chapter no. 2, 3, 4 and 6**	1
6	On placing a copper coin in a test tube containing green ferrous sulphate solution, it will be observed that the ferrous sulphate solution (a) turns blue, and a grey substance is deposited on the copper coin. (b) turns colourless and a grey substance is deposited on the copper coin. (c) turns colourless and a reddish–brown substance is deposited on the copper coin. (d) remains green with no change in the copper coin.	1
7	Reema took 5ml of Lead Nitrate solution in a beaker and added approximately 4ml of Potassium Iodide solution to it. What would she observe? a) The solution turned red. b) Yellow precipitate was formed. c) White precipitate was formed. d) The reaction mixture became hot.	1
8	Which of the following correctly represents a balanced chemical equation? a) $Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$ b) $3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$ c) $3Fe(s) + H_2O(g) \rightarrow Fe_3O_4(s) + H_2(g)$ d) $3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + H_2(g)$	1
9	The chemical reaction between copper and oxygen can be categorized as: a) Displacement reaction b) Decomposition reaction c) Combination reaction d) Double displacement reaction	1

Option	Acidic oxide	Used in treatment of water	Product of respiration	Product of incomplete combustion
(a)	CO	Cl_2	O_2	CO
(b)	CO_2	Cl_2	CO_2	CO
(c)	CO_2	O_2	O_2	CO_2
(d)	CO	O_2	CO_2	CO_2

10	Why is it important to balance a skeletal chemical equation? a) To verify law of conservation of energy. b) To verify the law of constant proportion. c) To verify the law of conservation of mass. d) To verify the law of conservation of momentum.	1
	SECTION - B	
11	A clear solution of slaked lime is made by dissolving $Ca(OH)_2$ in an excess of water. This solution is left exposed to air. The solution slowly goes milky as a faint white precipitate forms. Explain why a faint white precipitate forms, support your response with the help of a chemical equation. **OR** Keerti added dilute Hydrochloric acid to four metals and recorded her observations as shown in the table given below: **Metal** / **Gas Evolved** Copper — Yes Iron — Yes Magnesium — No Zinc — Yes Select the correct observation(s) and give chemical equation(s) of the reaction involved.	2
12	 Identify the correct option from the given table which represents the type of reactions occurring in step 1 and step 2. | | endothermic | exothermic | | A | × | ✓ | | B | ✓ | × | | C | ✓ | ✓ | | D | × | × |	2

	SECTION - C	
13	i)  ii)  Identify the types of reaction mentioned above in (i) and (ii). Give one example for each type in the form of a balanced chemical equation.	3
14	A reddish-brown metal 'X', when heated in air, gives a black compound 'Y', which when heated in presence of H_2 gas gives 'X' back. 'X' is refined by the process of electrolysis; this refined form of 'X' is used in electrical wiring. Identify 'X' and 'Y'. Draw a well-labeled diagram to represent the process of refining 'X'.	3
	CHAPTER-2	
	SECTION - A	
15	Mild non-corrosive basic salt is a) $Ca(OH)_2$ b) NaCl c) NaOH d) $NaHCO_3$	1
16	On adding dilute sulphuric acid to a test tube containing a metal 'X', a colourless gas is produced when a burning match stick is brought near it. Which of the following correctly represents metal 'X'? a) Sodium b) Sulphur c) Copper d) Silver	1
17	The change in colour of the moist litmus paper in the given set up is due to  i. presence of acid ii. presence of base iii. presence of H+ (aq) in the solution iv. presence of Litmus which acts as an indicator (a) i and ii (b) Only ii (c) Only iii (d) Only iv.	1

18	Anita added a drop each of diluted acetic acid and diluted hydrochloric acid on pH paper and compared the colors. Which of the following is the correct conclusion? (a) pH of acetic acid is more than that of hydrochloric acid. (b) pH of acetic acid is less than that of hydrochloric acid. (c) Acetic acid dissociates completely in aqueous solution. (d) Acetic acid is a strong acid	1
19	Identify gas A in the following experiment.  a) Nitrogen b) Hydrogen c) Oxygen d) Carbon dioxide	1
20	The graph given below depicts a neutralization reaction (acid + alkali → salt + water). The pH of a solution changes as we add excess of acid to an alkali.  Which letter denotes the area of the graph where both acid and salt are present?	1

a. A
b. B
c. C
d. D

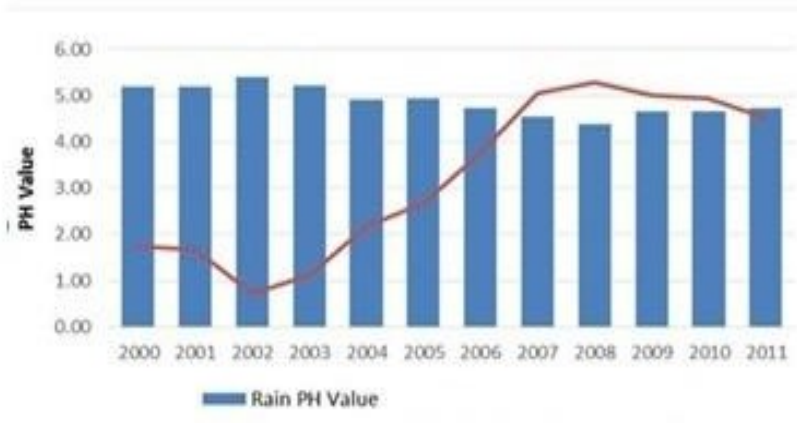
21 | Which of the given options correctly represents the *Parent acid* and *base* of Calcium Carbonate? | 1

OPTION	PARENT ACID	PARENT BASE
A	HCl	NaOH
B	H_2CO_3	$Ca(OH)_2$
C	H_3PO_3	$CaSO_4$
D	H_2SO_4	$CaSO_4$

22 | How will you protect yourself from the heat generated while diluting a concentrated acid? | 1

a) By adding acid to water with constant stirring.
b) By adding water to acid with constant stirring.
c) By adding water to acid followed by base.
d) By adding base to acid with constant stirring.

23 | In which year is concentration of hydrogen ion the highest? | 1

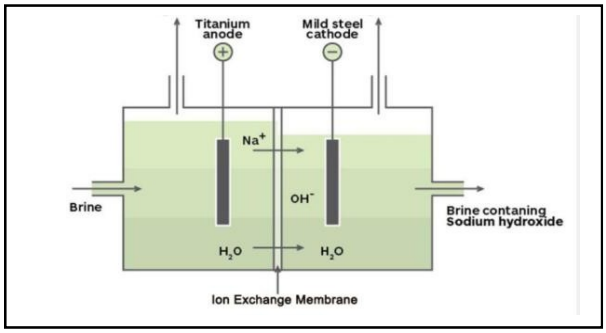
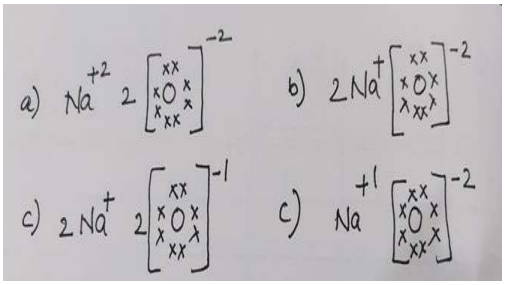
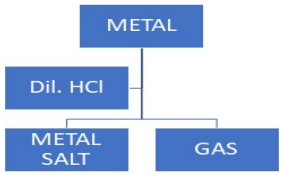


a) 2002
b) 2008
c) 2011
d) 2005

24 | Vinay observed that the stain of curry on a white shirt becomes reddish-brown when soap is scrubbed on it, but it turns yellow again when the shirt is washed with plenty of water. What might be the reason for his observation? | 1

i. Soap is acidic in nature
ii. Soap is basic in nature
iii. Turmeric is a natural indicator which gives reddish tinge in
iv. Turmeric is a natural indicator which gives reddish tinge in

	a) i and ii b) ii and iii c) i and iv d) ii and iv	
25	The table given below shows the reaction of a few elements with acids and bases to evolve Hydrogen gas. <table><tr><th>Element</th><th>Acid</th><th>Base</th></tr><tr><td>A</td><td>×</td><td>×</td></tr><tr><td>B</td><td>✓</td><td>✓</td></tr><tr><td>C</td><td>✓</td><td>×</td></tr><tr><td>D</td><td>✓</td><td>✓</td></tr></table>Which of these elements form amphoteric oxides? a) A and D b) B and D c) A and C d) B and D	1
26	*Even though rain water is the purest form of water, it acts as an electrolyte. However, distilled water cannot be an electrolyte.* The reason for this is a) rain water consists of dissolved oxygen b) rain water consists of dissolved oxides of sulphur c) rain water consists of dissolved Nitrogen d) rain water consists of dissolved oxides of Hydrogen	1
27	Which of the following solutions are electrolytes? i. Dil. HCl ii. Sugar Solution iii. Alcohol in water iv. Lime water a) i and ii b) i and iv c) ii, iii and iv d) i, ii and iv	1
28	A gas is evolved when Dil. Sulphuric Acid reacts with Zinc granules. It gives a pop sound when lit match stick is introduced near it. Identify the gas? a) Nitrogen b) Hydrogen c) Oxygen d) Carbon dioxide	1
29	*Metal X* reacts with *Dil. HCl* to form *Metal Salt* and *Gas*. Identify *X*? a) Copper b) Mercury c) Silver d) Zinc	1

30	In the neutralization reaction when excess of acid is added to an alkali, salt and water are produced. What is the nature of the solution after the reaction occurs? a) Amphoteric b) Acidic c) Basic d) Neutral	1
	SECTION - B	
31	Dil. HCl is added to Zn granules." How will you prove that chemical change has taken place here? Support your response with two arguments.	2
	SECTION - C	
32	 (a) Identify the gasses evolved at the anode and cathode in the above (b) Name the process that occurs. Why is it called so? (c) Illustrate the reaction of the process with the help of a chemical	3
	CHAPTER-3	
	SECTION - A	
33	Which one of the following correctly represents Sodium oxide? 	1
34		1

Which of the following two combinations are correct?

	Metal	Gas Evolved
(i)	Copper	Yes
(ii)	Iron	Yes
(iii)	Magnesium	No
(iv)	Zinc	Yes

a) i and iii

b) i and iv

c) ii and iii

d) ii and iv

35 (b) In which of the following applications of Iron, rusting will occur most? Support your answer with valid reason. 1

A B C D

A - Iron Bucket electroplated with Zinc

B - Electricity cables having iron wires covered with aluminium

C - Iron hinges on a gate

D - Painted iron fence

36 The reason for different behaviour (floating) of Mg in dil HCl is due to: 1

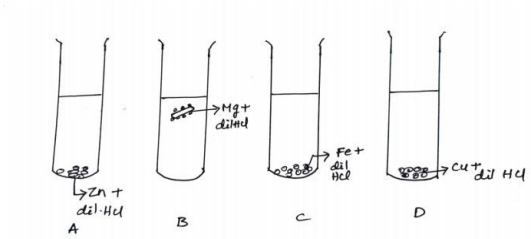
a) Mg is lighter element than dil. HCl

b) Mg reacts with dil. HCl to produce H_2 gas which helps in floating

c) Mg reacts with dil. HCl to produce N_2 gas which helps in floating

d) Mg reacts with dil. HCl to produce CO_2 gas which helps in floating

37 The diagram shows the reaction between metal and dil. acid. 2



What is the reason for different behaviour of Mg in test tube B?

a) Mg is lighter element than dil. HCl

b) Mg reacts with dil. HCl to produce H_2 gas which helps in floating

c) Mg reacts with dil. HCl to produce N_2 gas which helps in floating

d) Mg reacts with dil. HCl to produce CO_2 gas which helps in floating

38 The table shown below gives information about four substances: A, B, C and D. 2

SUBSTANCE	MELTING POINT (K)	ELECTRICAL CONDUCTIVITY	
		SOLID	LIQUID/ AQUEOUS
A	295	Good	Good
B	1210	Poor	Good
C	1890	Poor	Good
D	1160	Poor	Poor

Identify Ionic compounds from the above given substances.

a) A, B

b) B, C

c) A, B, D

d) A, C, D

39 A cable manufacturing unit tested few elements on the basis of their physical properties. 2

Properties	W	X	Y	Z
Malleable	Yes	No	No	Yes
Ductile	Yes	No	No	Yes
Electrical conductivity	Yes	Yes	Yes	No
Melting Point	High	Low	Low	High

Which of the above elements were discarded for usage by the company?

a) W, X, Y

b) X, Y, Z

c) W, X, Z

d) W, X, Z

SECTION - C

40 The given reaction shows one of the processes to extract the metals like Iron and Manganese. 3

$$MnO_2\ (s) + Al(s) \rightarrow Mn(l) + Al_2O_3(s) + Heat$$

a) Give reason why the above reaction is known as a ***thermite reaction*** .

b) Identify the substance oxidised and reduced in the above reaction.

c) Give a reason why Aluminium is preferably used in thermite reactions.

41 Chlorine gas was prepared using electrolysis of brine solution. Write the chemical equation to represent the change. Identify the other products formed in the process and give one application of each. 3

SECTION - D

42 Two students decided to investigate the effect of water and air on iron object under identical experimental conditions. They measured the mass of each object before placing it partially immersed in 10 ml of water. After a few days, the object were removed, dried and their masses were measured. The table shows their results. 4

Student	Object	Mass of Object before Rusting in g	Mass of the coated object in g
A	Nail	3.0	3.15
B	Thin plate	6.0	6.33

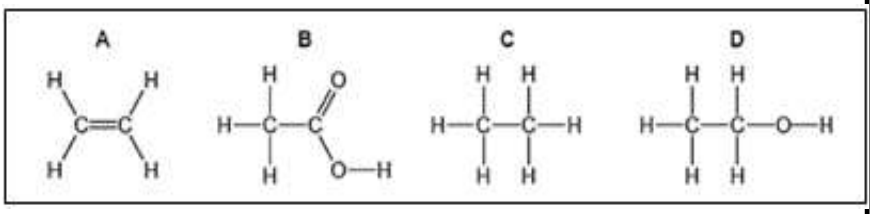
(a) What might be the reason for the varied observations of the two students?

(b) In another set up the students coated iron nails with zinc metal and noted that, iron nails coated with zinc prevents rusting. They also observed that zinc initially acts as a physical barrier, but an extra advantage of using zinc is that it continues to prevent rusting even if the layer of zinc is damaged. Name this process of rust prevention and give any two other methods to prevent rusting.

CHAPTER-4

SECTION - A

43 The formulae of four organic compounds are shown below. Choose the correct option 1

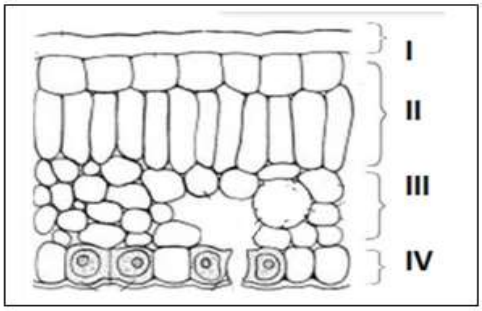
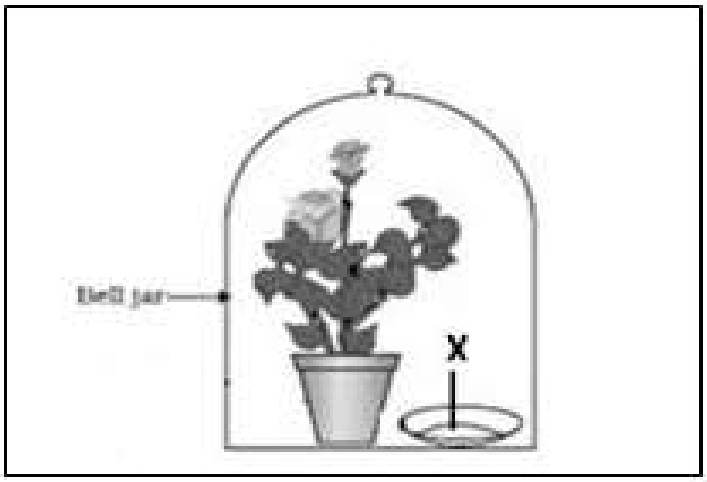


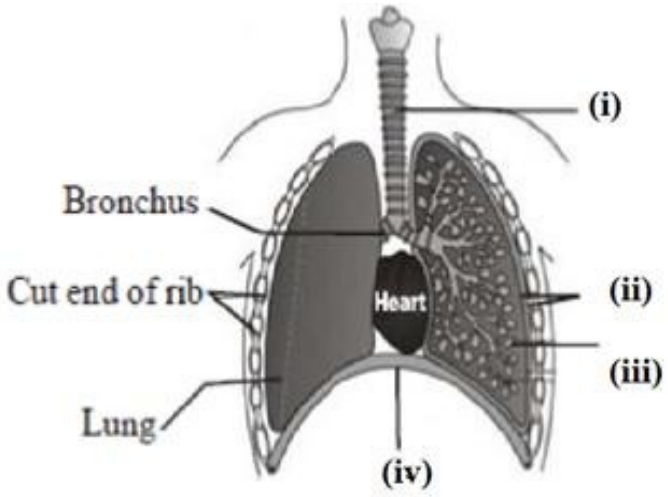
(a) A and B are unsaturated hydrocarbons

(b) C and D are saturated hydrocarbons

	(c) Addition of hydrogen in presence of catalyst changes A to C (d) Addition of potassium permanganate changes B to D	
	SECTION - D	
44	The points given below shows the hints given by the quiz master in a quiz. S.NO HINT (i) Substance 'C' is used as a preservative. (ii) 'C' has two carbon atoms; 'C' is obtained by the reaction of 'A' in presence of alkaline Potassium permanganate followed by acidification. (iii) Misuse of 'A' in industries is prevented by adding Methanol, Benzene, and pyridine to 'A'. (iv) 'F' is formed on heating 'A' in presence of conc Sulphuric acid. (v) 'F' reacts with Hydrogen gas in presence of Nickel and Palladium catalyst. Based on the above hints answer the following questions a) Give the IUPAC names of A and F b) Illustrate with the help of chemical equations the changes taking place. (A → C and A→ F) **OR** Name the chemical reactions which occur in steps (ii) and (v). Identify the compounds formed in these steps if 'A' is replaced with its next homologue.	4
	SECTION - E	
45	Rehmat classified the reaction between Methane and Chlorine in presence of sunlight as a substitution reaction. Support Rehmat's view with suitable justification and illustrate the reaction with the help of a balanced chemical equation. **OR** Raina while doing certain reactions observed that heating of substance 'X' with vinegar like smell with a substance 'Y' (which is used as an industrial solvent) in presence of conc. Sulphuric acid on a water bath gives a sweet-smelling liquid 'Z' having molecular formula $C_4H_8O_2$. When heated with caustic soda (NaOH), 'Z' gives back the sodium salt of and the compound 'Y'. Identify 'X', 'Y', and 'Z'. Illustrate the changes with the help of suitable chemical equations.	5

46	Shristi heated Ethanol with a compound A in presence of a few drops of concentrated sulphuric acid and observed a sweet smelling compound B is formed. When B is treated with sodium hydroxide it gives back Ethanol and a compound C. (a) Identify A and C (b) Give one use each of compounds A and B. (c) Write the chemical reactions involved and name the reactions. **OR** (a) What is the role of concentrated Sulphuric acid when it is heated with Ethanol at 443 K. Give the reaction involved. (b) Reshu by mistake forgot to label the two test tubes containing Ethanol and Ethanoic acid. Suggest an experiment to identify the substances correctly? Illustrate the reactions with the help of chemical equations	5
N.B. - Types of questions under Section B & C may be asked from this chapter too.		
CHAPTER-5		
SECTION - A		
47	An element with atomic number will form a basic oxide. a) 7 (2,5) b) 17 (2,8,7) c) 14 (2,8,4) d) 11 (2,8,1)	1
48	An element 'M' has 50% of the electrons filled in the 3rd shell as in the 2nd shell. The atomic number of 'M' is: a) 10 b) 12 c) 14 d) 18	1
N.B. - Questions other than MCQ (Section B, C, D & E) may be asked from this chapter too.		
CHAPTER-6		
SECTION - A		
49	Generally food is broken and absorbed within the body of organisms. In which of the following organisms is it done outside the body? a) Amoeba b) Mushroom c) Paramoecium d) Lice	1
50	A sportsman, after a long break of his routine exercise, suffered muscular cramps during a heavy exercise session. This happened due to: a) lack of carbon dioxide and formation of pyruvate. b) presence of oxygen and formation of ethanol.	1

	c) lack of oxygen and formation of lactic acid. d) lack of oxygen and formation of carbon dioxide.	
51	In the given transverse section of the leaf identify the layer of cells where maximum photosynthesis occurs.  (a) I, II (b) II, III (c) III, IV (d) I, IV	1
52	Observe the experimental setup shown below. Name the chemical indicated as 'X' that can absorb the gas which is evolved as a byproduct of respiration.  (a) NaOH (b) KOH (c) Ca $(OH)_2$ (d) K_2CO_3	1
53	Carefully study the diagram of the human respiratory system with labels (i), (ii), (iii) and (iv). Select the option which gives correct identification and main function and /or characteristic.	1

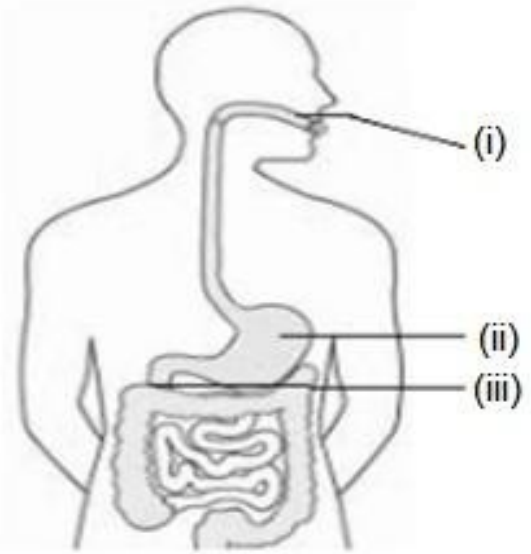


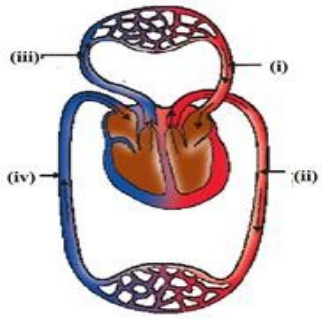
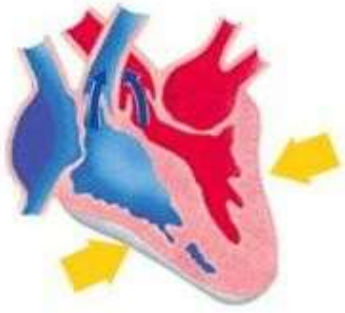
a) (i) Trachea: It is supported by bony rings for conducting inspired air.

b) (ii) Ribs: When we breathe out, ribs are lifted.

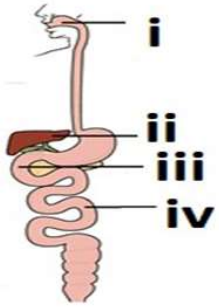
c) (iii) Alveoli: Thin-walled sac like structures for exchange of gases.

d) (iv) Diaphragm: It is pulled up when we breathe in.

54	Identify the option that indicates the correct enzyme that is secreted in location (i), (ii) and (iii).  a) (i)-lipase, (ii)-trypsin, (iii)-pepsin b) (i)-amylase, (ii)-pepsin, (iii)-trypsin c) (i)-trypsin, (ii)-amylase, (iii)-carboxylase d) (i)-permease, (ii)-carboxylase, (iii)-oxidase	1

55	Opening and closing of stomatal pore depends on: a) Atmospheric temperature b) oxygen concentration around stomata c) carbon dioxide concentration around stomata d) water content in the guard cells	1
56	The figure given below shows a schematic plan of blood circulation in humans with labels (i) to (iv). Identify the correct label with its functions?  a) (i) Pulmonary vein - takes impure blood from body part. b) (ii) Pulmonary artery - takes blood from lung to heart. c) (iii) Aorta - takes blood from heart to body parts. d) (iv) Vena cava takes - blood from body parts to right auricle.	1
57	Identify the phase of circulation which is represented in the diagram of heart given below. Arrows indicate contraction of the chambers shown.  a) Blood transferred to the right ventricle and left ventricle simultaneously. b) Blood is transferred to lungs for oxygenation and is pumped into various organs simultaneously. c) Blood transferred to the right auricle and left auricle simultaneously. d) Blood is received from lungs after oxygenation and is received from various organs of the body.	1

58 Observe the diagram of Human digestive system. 1



Match the labeling referred in column I and correlate with the function in column II.

Column I	Column II
i	a. The length of this depends on food the organism eats.
ii	b. Initial phase of starch digestion
iii	c. Increases the efficiency of lipase enzyme action
iv	d. This is the site of the complete digestion of carbohydrates, proteins and fats.

A. i.- a) ; ii – b) ; iii – c) ; iv- d)
B. i.- b) ; ii – c) ; iii – d) ; iv- a)
C. i.- b) ; ii – d) ; iii – c) ; iv- a)
D. i.- d) ; ii – a) ; iii – b) ; iv- c)

59 Which of the following steps can be followed for making the apparatus air tight? 1

i. placing the plants on glass plate
ii. using a suction pump.
iii. applying aseline to seal the bottom of jar.
iv. creating vacuum

a) i and ii
b) ii. and iii
c) i. and iii
d) ii. and iv

60 Select the option which gives correct function and /or characteristic: of the four parts of human respiratory system. 1

a) Alveoli: Thin-walled sac like structures for exchange of gases.

b) Diaphragm: It is pulled up when we breathe in.
c) Trachea: It is supported by bony rings for conducting inspired air.
d) Ribs: When we breathe out, ribs are lifted.

61 Identify the option that indicates the correct enzyme that is secreted in location L, M and N.L, M and N represent Mouth cavity, stomach and small intestine of the human being. 1

	L	M	N
A	lipase	trypsin	pepsin
B	amylase	pepsin	trypsin
C	trypsin	amylase	lipase
D	lipase	amylase	pepsin

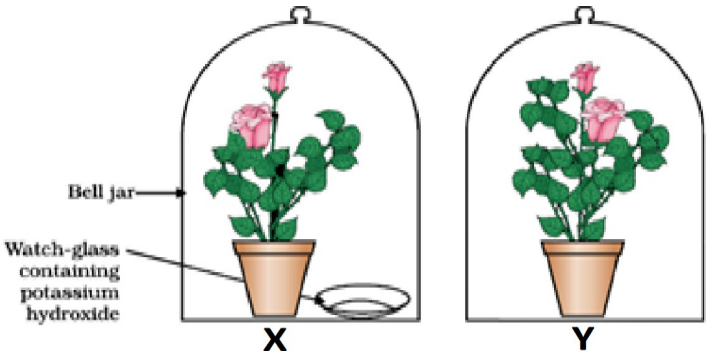
<table>
<tr><td>62</td><td>Given below are the functions of some parts of human circulatory system. Identify the correct match.
a) Pulmonary vein – takes oxygenated blood from body partsto heart
b) Artery – takes oxygenated blood from heart to lung
c) Dorsal aorta – takes deoxygenated blood from heart to body parts
d) Vena cava – takes deoxygenated blood from body parts to right atrium</td><td>1</td></tr>
<tr><td>63</td><td>What happens when right and left ventricle contract during pumping of blood by human heart?
a) Blood transferred to the right ventricle and left ventricle simultaneously.
b) Blood is transferred to lungs for oxygenation and is pumped into various organs simultaneously.
c) Blood transferred to the right atrium and left atrium simultaneously.
d) Blood is received from lungs after oxygenation and is received from various organs of the body.</td><td>1</td></tr>
<tr><td>64</td><td>i, ii, iii and iv represent mouth cavity, liver, first part of small intestine and complete small intestine respectively of Human digestive system.

Match the labeling referred in column I and correlate with the function in column II.
<table><tr><th>Column I</th><th>Column II</th></tr><tr><td>i</td><td>a. The length of this depends of food the organism eats.</td></tr><tr><td>ii</td><td>b. Initial phase of starch digestion.</td></tr><tr><td>iii</td><td>c. Increase the efficiency of lipase enzyme action.</td></tr><tr><td>iv</td><td>d. This is the site of the complete digestion of carbohydrates, proteins and fats.</td></tr></table>a) i.- c ; ii – d ; iii – a ; iv- d
b) i.- b ; ii – c ; iii – d ; iv- a
c) i.- a ; ii – c ; iii – d ; iv- c
d) i.- d ; ii – a ; iii – b ; iv- c</td><td>1</td></tr>
<tr><td colspan="3">SECTION - B</td></tr>
<tr><td>65</td><td>What is the purpose of making urine in the human body? Name the organs that stores and releases the urine.

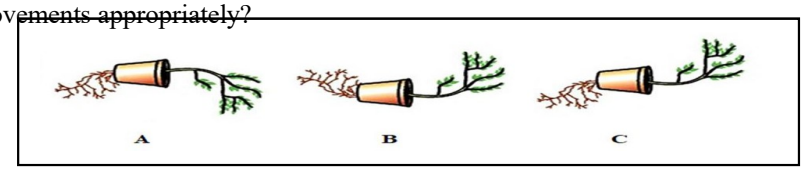
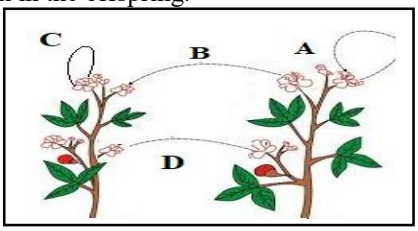
OR

Why do arteries have thick and elastic walls whereas veins have valves?</td><td>2</td></tr>
<tr><td>66</td><td>Patients whose gallbladder are removed are recommended to eat less oily food. Why?</td><td>2</td></tr>
<tr><td>67</td><td>Name the substances other than water, that are reabsorbed during urine formation. What are the two parameters that decide the amount of water that is reabsorbed in the kidney?</td><td>2</td></tr>
</table>

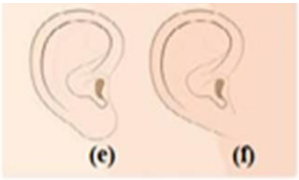
68	In which of the following groups of organisms, blood flows through the heart only once during one cycle of passage through the body? a) Rabbit, Parrot, Turtle b) Frog, crocodile, Pigeon c) Whale, Labeo, Penguin d) Shark, dog fish, sting ray	2
69	What is common between extensive network of blood vessels around walls of alveoli and in glomerulus of nephron? a) Thick walled arteries richly supplied with blood b) Thin walled veins poorly supplied with blood c) Thick walled capillaries poorly supplied with blood. d) Thin walled capillaries richly supplied with blood	2
70	Plants use completely different process for excretion as compared to animals. Which one of the following processes is **NOT** followed by plants for excretion? a) They can get rid of excess water by transpiration. b) They selectively filter toxic substances through their leaves. c) Waste products are stored as resins and gums in old xylem. d) They excrete waste substances into the soil around them.	2
71	In which of the following groups of organisms, food material is broken down outside the body and then absorbed in? a) mushroom, green plants, amoeba b) yeast, mushroom, bread mould c) paramecium, amoeba, cuscuta d) cuscuta, lice, tapeworm	2
72	In a person the tubule part of the nephron is not functioning at all. What will its effect be on urine formation? a) The urine will not be formed. b) Quality and quantity of urine is unaffected. c) Urine is more concentrated. d) Urine is more diluted.	2
73	What is the purpose of making urine in the human body? Name the organs that stores and releases the urine. **OR** Why do arteries have thick and elastic walls whereas veins have valves?	2
	SECTION - C	
74	The leaves of a plant were covered with aluminium foil, how would it affect the physiology of the plant? **OR**	3

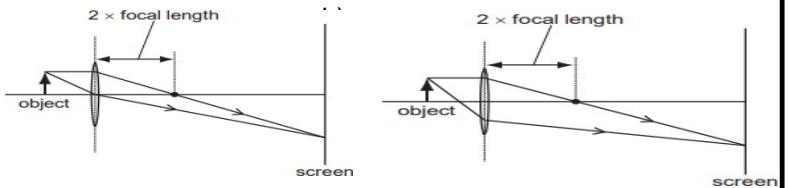
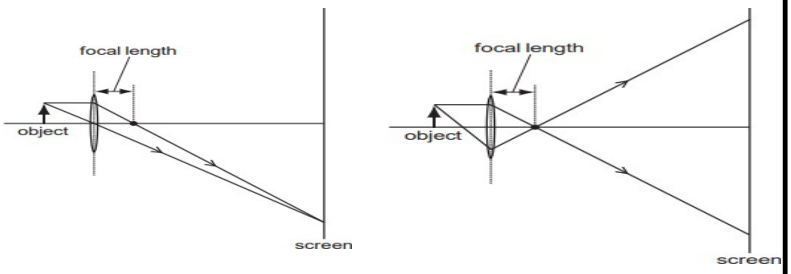
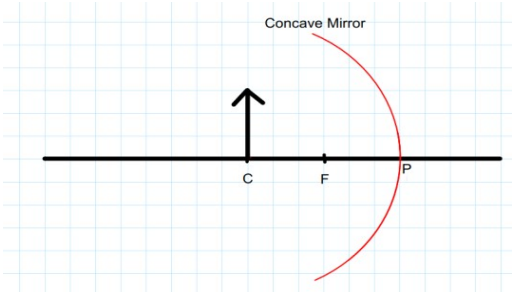
	How is lymph an important fluid involved in transportation? If lymphatic vessels get blocked, how would it affect the human body? Elaborate.	
75	We are advised to take iodised salt in our diet by doctors. Justify it's importance in our body.	3
Case	The Figure shown below represents an activity to prove the requirements for photosynthesis. During this activity, two healthy potted plants were kept in the dark for 72 hours. After 72 hours, KOH is kept in the watch glass in setup X and not in setup Y. Both these setups are air tight and have been kept in light for 6 hours. Then, Iodine Test is performed with one leaf from each of the two plants X and Y.  	1+1+1=3
76	This experimental set up is used to prove essentiality of which of the following requirements of photosynthesis? a) Chlorophyll b) Oxygen c) Carbon dioxide d) Sunlight	
77	The function of KOH is to absorb a) Oxygen. b) Carbon dioxide. c) Moisture. d) Sunlight.	
78	Which of the following statements shows the correct results of Iodine Test performed on the leaf from plant X and Y respectively? a) Blue - black colour would be obtained on the leaf of plant X and no change in colour on leaf of plant Y. b) Blue - black colour would be obtained on the leaf of plant Y and no change in colour onleaf of plant X. c) Red colour would be obtained on the leaf of plant X and brown colour on the leaf of plant Y. d) Red colour would be obtained on the leaf of plant Y and brown colour on the leaf of plant X.	

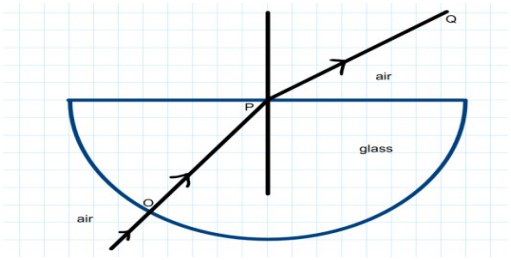
Case	A student was-performing an activity to prove the requirements for photosynthesis. During this activity, he kept two identical healthy potted plantsA and Bin dark for 72 hours. After 72 hours, he covered plant A and B by bell shaped jars separately. While covering the plants with separate bell jars, he kept KOH in the watch glass by the side of the plant in setup A and not in setup B. Both these setups were made air tight and were kept in light for 6 hours. Then, Iodine Test was performed with one leaf from each of the two plants A and B.	1+1+1=3
79	This experimental set up is used to prove essentiality of which of the following requirements of photosynthesis? a) Chlorophyll b) Oxygen c) Carbon dioxide d) Sunlight	
80	The function of KOH is to absorb a) Oxygen. b) Carbon dioxide. c) Moisture. d) Sunlight.	
81	Which of the following statements shows the correct results of Iodine Test performed on the leaf from plant A and B respectively? a) Blue - black colour would be-obtained on the leaf of plant A b) Blue - black colour would be-obtained on the leaf of plant B c) Red colour would be obtained on the leaf of plant A d) Red colour would be obtained on the leaf of plant B	
82	Which of the following steps can be followed for making the apparatus air tight? i. placing the plants on glass plate ii. using a suction pump. iii. applying Vaseline to seal the bottom of jar. iv. creating vacuum a) i and ii b) ii. and iii c) i. and iii d) ii. And iv	
CHAPTER-7		
SECTION - A		
83	Receptors are usually located in sense organs. Gustatory receptors are present in a) tongue b) nose c) eye d) ear	1

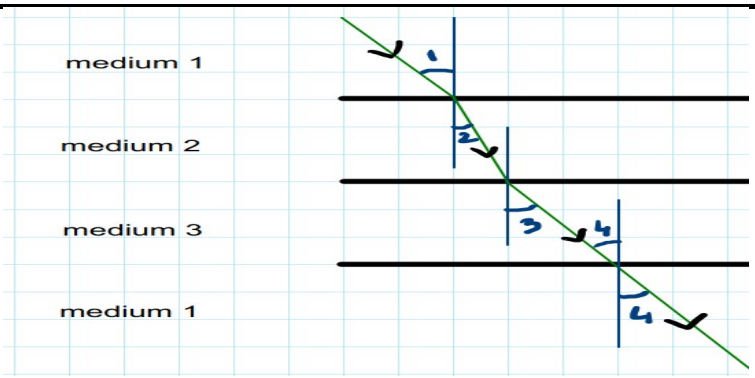
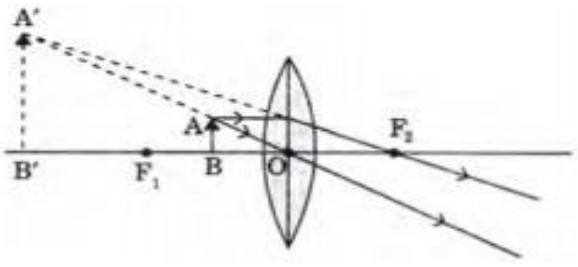
84	Height of a plant is regulated by: a) DNA which is directly influenced by growth hormone. b) Genes which regulate the proteins directly. c) Growth hormones under the influence of the enzymes coded by a gene. d) Growth hormones directly under the influence a gene.	1
85	Observe the three figures given below. Which of the following depicts tropic movements appropriately?  (a) B and C (b) A and C (c) B only (d) C only	1
	SECTION - B	
86	How is the mode of action in beating of the heart different from reflex actions? Give four examples.	2
	SECTION - C	
87	a) A doctor has advised Sameer to reduce sugar intake in his diet and do regular exercise after checking his blood test reports. Which disease do you think Sameer is suffering from? Name the hormone responsible for this disease and the organ producing the hormone. b) Which hormone is present in the areas of rapid cell division in a plant and which hormone inhibits the growth?	4
	CHAPTER-8	
	SECTION - A	
88	A farmer wants to grow banana plants genetically similar enough to the plants already available in his field. Which one of the following methods would you suggest for this purpose? a) Regeneration b) Budding c) Vegetative propagation d) Sexual reproduction	1
89	The diagram shown below depicts pollination. Choose the options that will show a maximum variation in the offspring.  (a) A, B and C (b) B and D (c) B, C and D (d) A and C	1

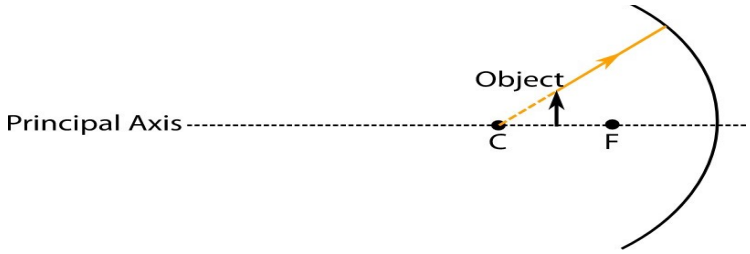
	SECTION - B	
90	State the post-fertilisation changes that lead to fruit formation in plants.	2
	SECTION - E	
91	Given below are certain situations. Analyze and describe its possible impact on a person: a) Testes of a male boy are not able to descend into scrotum during his embryonic development. b) Vas deferens of a man is plugged. c) Prostate and seminal vesicles are not functional. d) Egg is not fertilised in a human female. e) Placenta does not attach to the uterus optimally.	5
92	(a) Why is it not possible to reconstruct the whole organism from a fragment in complex multicellular organisms? (b) Sexual maturation of reproductive tissues and organs are necessary link for reproduction. Elucidate. **OR** (a) How are variations useful for species if there is drastic alteration in the niches? (b) Explain how the uterus and placenta provide necessary conditions for proper growth and development of the embryo after implantation?	5
	N.B. - Types of question under Section C & D may be asked from this chapter too	
	CHAPTER-9	
	SECTION - A	
93	If a tall pea plant is crossed with a pure dwarf pea plant then, what percentage of F1 and F2 generation respectively will be tall? (a) 25%, 25% (b) 50%, 50% (c) 75%,100% (d) 100%, 75%	1
	N.B. - Types of question under Section B may be asked from this chapter too	
	SECTION - C	
94	What is the probability of a girl or a boy being born in a family? Justify your answer.	3
	SECTION - D	
95	Figures (a) to (d) given below represent the type of ear lobes present in a family consisting of 2 children – Rahul, Nisha and their parents.  a) Rahul's Father b) Rahul c) Rahul's Mother d) Rahul's sister Nisha	4

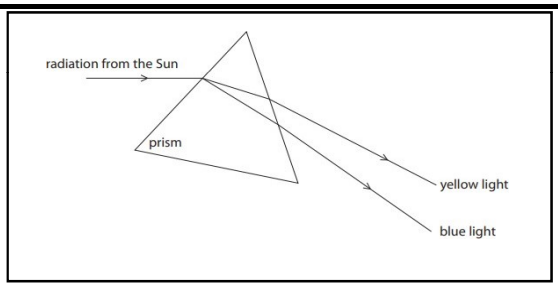
	 **Type of ear lobes** Excited by his observation of different types of ear lobes present in his family, Rahul conducted a survey of the type of ear lobes found {Figure (e) and (f)} in his classmates. He found two types of ear lobes in his classmates as per the frequency given below: Sex Free Attached Male 36 14 Female 31 19 On the basis of above data answer the following questions. a) Which of the two characteristics - 'free ear lobe' or 'attached ear lobe' appears to be dominant in this case? Why? b) Is the inheritance of the free ear lobe linked with sex of the individual? Give reason for your answer. c) What type of ear lobe is present in father, mother, Rahul and his sister Nisha? Write the genetic constitution of each of these family members which explains the inheritance of this character in this family? (Gene for Free ear lobe is represented by F and gene for attached ear lobe is represented by f for writing the genetic constitution). **OR** Suresh's parents have attached ear lobes. What type of ear lobe can be seen in Suresh and his sister Siya? Explain by giving the genetic composition of all.	
96	Pooja has green eyes while her parents and brother have black eyes. Pooja's husband Ravi has black eyes while his mother has green eyes and father has black eyes. (a) On the basis of the above given information, is the green eye colour a dominant or recessive trait? Justify your answer. (b) What is the possible genetic makeup of Pooja's brother's eye colour? (c) What is the probability that the offspring of Pooja and Ravi will have green eyes? Also, show the inheritance of eye colour in the offspring with the help of a suitable cross. **OR** (d) 50% of the offspring of Pooja's brother are green eyed. With help of cross show how this is possible.	4
	CHAPTER-10	
	SECTION - A	
97	An object is placed in front of a convex mirror. Its image is formed : a) at a distance equal to the object distance in front of the mirror. b) at twice the distance of the object in front of the mirror. c) half the distance of the object in front of the mirror. d) behind the mirror and it's position varies according to the object distance.	1

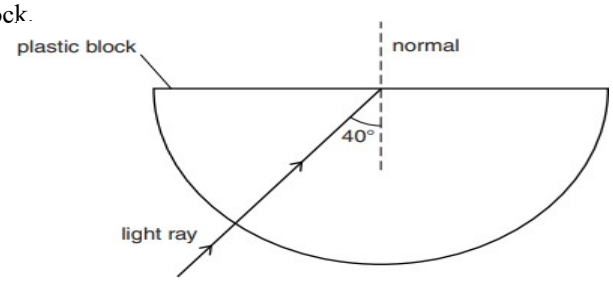
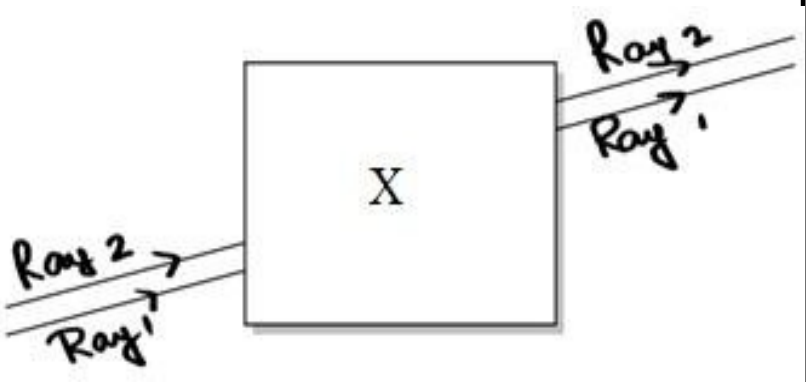
98	Which of the following mirror is used by a dentist to examine a small cavity in a patient's teeth? a) Convex mirror b) Plane mirror c) Concave mirror d) Any spherical mirror	1
99	Which diagram shows image formation of an object on a screen by a converging lens? a)  c)  	1
100	Which of the following can make a parallel beam of light when light from a point source is incident on it? a) Concave mirror as well as convex lens. b) Convex mirror as well as concave lens. c) Two plane mirrors placed at 90° to each others. d) Concave mirror as well as concave lens.	1
101	Consider these indices of refraction: glass: 1.52; air: 1.0003; water: 1.333. Based on the refractive indices of three materials, arrange the speed of light through them in decreasing order. a) The speed of light in water > the speed of light in air > the speed of light in glass. b) The speed of light in glass > the speed of light in water > the speed of light in air. c) The speed of light in air > the speed of light in water > the speed of light in glass. d) The speed of light in glass > the speed of light in air > the speed of light in water.	1
102	 Examine the above figure and state which of the following option is correct? [one small box in the figure is equal to 1 cm]	1

	a) The mirror has a focal length of -6 cm and will produce an image of magnification +1. b) The mirror has a focal length of -3 cm and will produce an image of magnification -1. c) The mirror has a focal length of -3 cm and will produce an image of magnification +1. d) The mirror has a focal length of -6 cm and will produce an image of magnification -1.	
103	 The angle of incidence from air to glass at the point O on the hemispherical glass slab is. a) 45° b) 0° c) 90° d) 180°	1
104	If the power of a lens is - 4.0 D, then it means that the lens is a a) concave lens of focal length -50 m b) convex lens of focal length +50 cm c) concave lens of focal length -25 cm d) convex lens of focal length -25 m	1
105	Rays from Sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object? a) 30 cm in front of the mirror b) 15 cm in front of the mirror c) Between 15 cm and 30 cm in front of the mirror d) More than 30 cm in front of the mirror	1
106	If the real image of a candle flame formed by a lens is three times the size of the flame and the distance between lens and image is 80 cm, at what distance should the candle be placed from the lens? a) -80cm b) -40 cm c) -40/3 cm d) -80/3 cm	1

107	 In the above diagram light is travelling through different media. It is noted by a scientist that ∠1= ∠3= ∠4 but ∠ 2 <∠1. Which of the following statement would be correct? a) Medium 1 is the denser than medium 3 but it's density is equal to medium 2. b) Medium 2 is the rarest medium. c) Medium 3 is denser than medium 1. d) Medium 1 and 3 are essentially the same medium, but medium 2 is denser than 1 and 3.	**1**
108	The refractive index of flint glass is 1.65 and that for alcohol is 1.36 with respect to air. What is the refractive index of the flint glass with respect to alcohol ? a) 0.82 b) 1.21 c) 1.11 d) 1.01	**1**
109	 The above lens has a focal length of 10 cm. The object of height 2 mm is placed at a distance of 5 cm from the pole. Find the height of the image. a) 4 cm b) 6.67 mm c) 4 mm d) 3.33 mm	**1**

110	 While looking at the above diagram, Nalini concluded the following- i. the image of the object will be a virtual one. ii. the reflected ray will travel along the same path as the incident ray but in opposite direction. iii. the image of the object will be inverted. iv. this is a concave mirror and hence the focal length will be negative. Which one of the above statements are **correct**? a) i and ii b) i and iii c) ii, iii and iv d) i, ii, iii and iv	1
111	If a virtual, erect and enlarged image is formed by a lens, then which of the following options are correct? a) It is a concave lens and the object is placed between pole and focus. b) It is a convex lens and the object is placed between focus and centre of curvature. c) It is a convex lens and the object is placed between pole and focus. d) It is a concave lens and the object is placed between focus and centre of curvature.	1
112	Consider the situation where: • An object is 3 cm (height) • Mirror is concave with 6 cm focal length. • Object is placed at the centre of curvature. Which of the following options are correct? A. The mirror will produce an image of magnification +1.5. B. The mirror will produce an image of magnification -1. C. The mirror will produce an image of magnification +1. D. The mirror will produce an image of magnification -1.5.	1
113	If a ray passes from air to glass in a spherical glass slab and passes through the centre of the slab without deviation, then the angle of incidence from air to glass at the point on the glass slab is. a) 45° b) 0° c) 90° d) 180°	1

114	Nalinl draws a ray diagram for an object in front of a concave mirror. She draws a ray starting from the top of the object and falling on the mirror perpendicularly. The ray after reflection will a) pass through focus. b) pass through pole. c) pass through the centre of curvature. d) pass through any point on the principal axis.	1
115	If the refractive index of water with respect to air is 1.33 and of that of glass with respect to air is 1.5 then a) water is optically denser than glass. b) air is optically densest of all the three media. c) air's optical density is between glass and air. d) glass is optically denser than water.	1
116	A convex lens has a focal length of 10 cm. The object of height 2 mm is placed at a distance of 5 cm from the pole. Find the height of the image. a) 4 cm b) 6.67 mm c) 4 mm d) 3.33 mm	1
	SECTION - B	
117	 State the phenomena observed in the above diagram. Explain with reference to the diagram, which of the two lights mentioned above will have the higher wavelength? **OR** How will you use two identical prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Draw the diagram.	2
118	The refractive indices of three media are given below: Medium — Refractive Index A — 1.6 B — 1.8 C — 1.5 A ray of light is travelling from A to B and another ray is travelling from B to C. (a) In which of the two cases the refracted ray bends towards the normal? (b) In which case does the speed of light increase in the second medium? Give reasons for your answer.	2

SECTION - C		
119	(i) Explain why the refractive index of any material with respect to air is always greater 1. (ii) In the figure below a light ray travels from air into the semi-circular plastic block. Give a reason why the ray does not deviate at the semi-circular boundary of the plastic block.  (iii) Complete the ray diagram of the above scenario when the light ray comes out of the plastic block from the top flat end.	1+1+1
120	Rohit wants to have an erect image of an object using a converging mirror of focal length 40 cm. (a) Specify the range of distance where the object can be placed in front of the mirror. Justify. (b) Draw a ray diagram to show image formation in this case. (c) State one use of the mirror based on the above kind of image formation.	3
121	(a) A lens of focal length 5 cm is being used by Debashree in the laboratory as a magnifying glass. Her least distance of distinct vision is 25 cm. (i) What is the magnification obtained by using the glass? (ii) She keeps a book at a distance 10 cm from her eyes and tries to read. She is unable to read. What is the reason for this? (b) Ravi kept a book at a distance of 10 cm from the eyes of his friend Hari. Hari is not able to read anything written in the book. Give reasons for this?	3
Case	Noor, a young student, was trying to demonstrate some properties of light in her Science project work. She kept 'X' inside the box (as shown in the figure) and with the help of a laser pointer made light rays pass through the holes on one side of the box. She had a small butter-paper screen to see the spots of light being cast as they emerged.  	1+1+1=3

122	What could be the 'X' that she placed inside the box to make the rays behave as shown? a) a converging lens b) a parallel-sided glass block c) a plane mirror d) a triangular prism
123	She measured the angles of incidence for both the rays on the left side of the box to be 48.60. She knew the refractive index of the material 'X' inside the box was 1.5. What will be the approximate value of angle of refraction? a) 45^0 b) 40^0 c) 30^0 d) 60^0 (use the value: sin $48.6^0 \approx 0.75$)
124	Her friend noted the following observations from this demonstration: i. Glass is optically rarer than air. ii. Air and glass allow light to pass through them with the same velocity. iii. Air is optically rarer than glass. iv. Speed of light through a denser medium is faster than that of a rarer medium. v. The ratio: sin of angle of incidence in the first medium to the ratio of sin of angle of refraction in the second medium, gives the refractive index of the second material with respect to the first one. Which one of the combination of the above statements given below is correct. a) ii, iv and v are correct. b) iii and iv are correct. c) i, iv and v are correct. d) iii and v are correct.
125	If the object inside the box was made of a material with a refractive index less than 1.5 then the a) lateral shift of the rays would have been less. b) lateral shift of the rays would have been more. c) lateral shift of the rays would remain the same as before. d) there is not enough information to comment on any of the above statements

SECTION - D

126

The above images are that of a specialized slide projector. Slides are small transparencies mounted in sturdy frames ideally suited to magnification and projection, since they have a very high resolution and a high image quality. There is a tray where the slides are to be put into a particular orientation so that the viewers can see the enlarged erect images of the transparent slides. This means that the slides will have to be inserted upside down in the projector tray.

To show her students the images of insects that she investigated in the lab, Mrs. Iyer brought a slide projector. Her slide projector produced a 500 times enlarged and inverted image of a slide on a screen 10 m away.

(a) Based on the text and data given in the above paragraph, what kind of lens must the slide projector have?

(b) If v is the symbol used for image distance and u for object distance then with one reason state what will be the sign for v/u in the given case?

(c) A slide projector has a convex lens with a focal length of 20 cm. The slide is placed upside down 21 cm from the lens. How far away should the screen be placed from the slide projector's lens so that the slide is in focus?

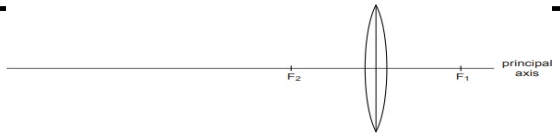
OR

(c)When a slide is placed 15 cm behind the lens in the projector, an image is formed 3 m in front of the lens. If the focal length of the lens is 14 cm, draw a ray diagram to show image formation. (not to scale)

SECTION - E

127

1+2+2



The above image shows a thin lens of focal length 5m.

(i) What is the kind of lens shown in the above figure?

(ii) If a real inverted image is to be formed by this lens at a distance of 7m from the optical centre, then show with calculation where should the object be placed?

(iii) Draw a neatly labelled diagram of the image formation mentioned in (ii)

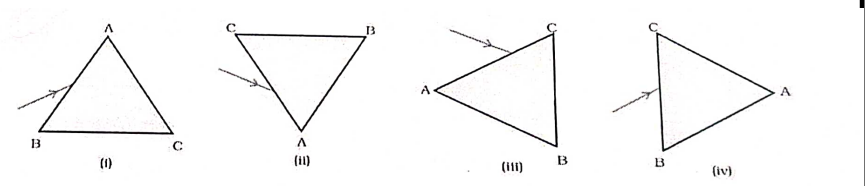
OR

A 10 cm long pencil is placed 5 cm in front of a concave mirror having a radius of curvature of 40 cm.

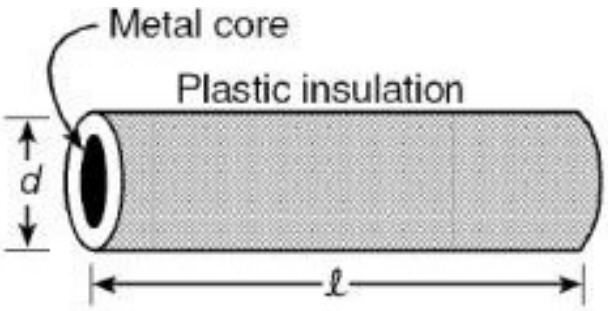
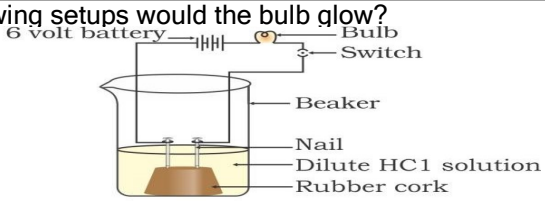
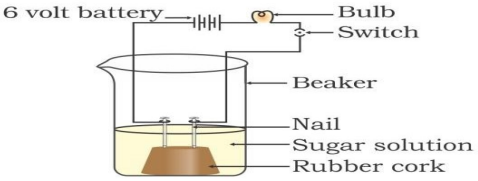
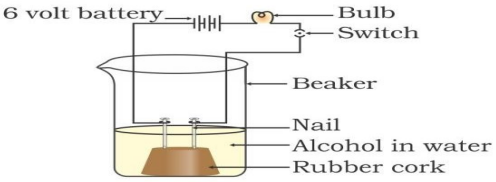
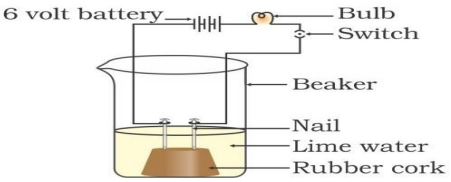
(i) Determine the position of the image formed by this mirror.

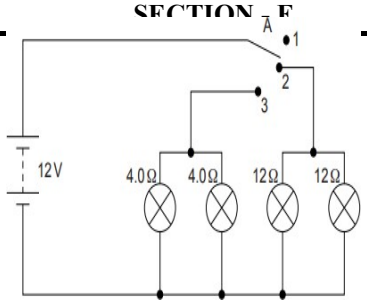
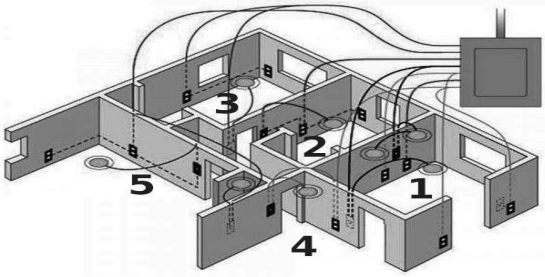
(ii) What is the size of the image?

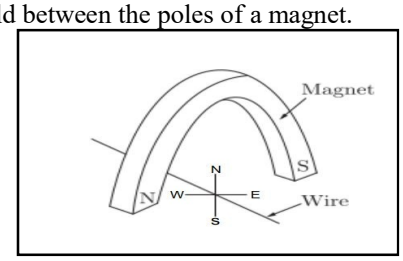
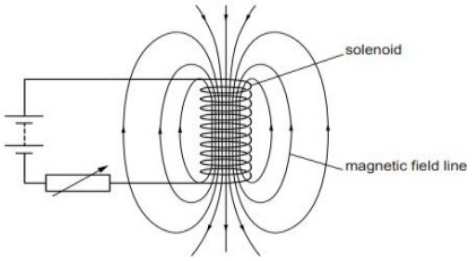
(iii) Draw a ray diagram to show the formation of the image as mentioned in the part (i).

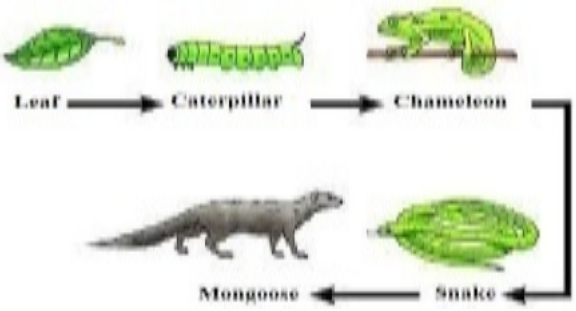
CHAPTER-11		
SECTION - A		
128	If a beam of red light and a beam of violet light are incident at the same angle on the inclined surface of a prism from air medium and produce angles of refraction r and v respectively, which of the following is correct? a) r = v b) r > v c) r = 1/v d) r < v	1
129	A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in below Figure. In which of the following diagrams, after dispersion, the third colour from the top of the spectrum corresponds to the colour of the sky?  a) (i) b) (ii) c) (iii) d) (iv)	1
130	Out of all colours making the white light, which one will deviate the most while it passes through a prism? a) Red. b) Violet. c) Blue. d) Green.	1
131	When light enters the atmosphere it strikes on extremely fine particles, which deflect the rays of light in all possible directions, This is due to - a) reflection of light b) atmospheric refraction c) scattering of light d) dispersion of light	1
SECTION - C		
Case	In an experiment, Pooja used a equilateral triangular glass prism and projected a narrow beam of white light source from one side of the surface of the prism. She placed a screen on the other side and saw many colours appearing as patches on the screen. But when she used a red light source, she could only see a red patch on the screen. Similarly she used a blue and green light source and could only see one colour patch on both occasions.	1+1+1=3

132	The phenomenon that she was trying to demonstrate was: a) Dispersion b) Reflection c) Refraction d) Scattering.	
133	The reason why she could no see any other colour when the red light was used was because: a) Red colour does not refract in prism. b) Red colour is monochromatic. c)The prism was defective. d) The prism is opaque to red colour.	
134	Which of the following can be the correct explanation that Pooja can give to her friends to explain this phenomenon? a) Different lights travel faster in the glass prism at different rates. b) Any light would disperse in the prism. c) Enough data is not available to make a scientific explanation in this case. d) Different wavelengths travel at different speeds in the glass.	
135	She also could relate to another natural phenomenon that we observe on a rainy humid day as the sun comes out. What could be that phenomenon? a) Lightning. b) Blueness of the sky. c) Rainbow. d) Scattering of light.	
N.B. - Types of question under Section B may be asked from this chapter too		
CHAPTER-12		
SECTION - A		
136	A complete circuit is left on for several minutes, causing the connecting copper wire to become hot. As the temperature of the wire increases, the electrical resistance of the wire (a) decreases. (b) remains the same. (c) increases. (d) increases for some time and then decreases .	1

137	 Plastic insulation surrounds a wire having diameter ***d*** and length ***l*** as shown above. A decrease in the resistance of the wire would be produced by an increase in the (a) length l of the wire (b) diameter d of the wire (c) temperature of the wire (d) thickness of the plastic insulation	1
	SECTION - B	
138	A piece of wire of resistance R is cut into three equal parts. These parts are then connected in parallel. If the equivalent resistance of this parallel combination is R_1, what is the value of the ratio $R_1 : R$?	2
139	In which of the following setups would the bulb glow? (i)  (ii)  (iii)  (iv) 	2

	a) i and ii b) i and iv c) ii, iii and iv d) i, ii and iv	
	SECTION - C	
140	(i) State the law that explains the heating effect of current with respect to the measurable properties in an electrical circuit. (ii) List the factors on which the resistance of a conductor depends.	2+1
	SECTION - E	
141	 Vinita and Ahmed demonstrated a circuit that operates the two headlights and the two sidelights of a car, in their school exhibition. Based on their demonstrated circuit, answer the following questions. (i) State what happens when switch A is connected to *a)* Position 2 *b)* Position 3 (ii) Find the potential difference across each lamp when lit. (iii) Calculate the current *a)* in each 12 Ω lamp when lit. *b)* In each 4 Ω lamp when lit. **OR** (iv) Show, with calculations, which type of lamp, 4.0 Ω or 12 Ω, has the higher power.	1+1+2
142	 The diagram above is a schematic diagram of a household circuit. The house shown in the above diagram has 5 usable spaces where electrical connections are made. For this house, the mains have a voltage of 220 V and the net current coming from the mains is 22A. (a) What is the mode of connection to all the spaces in the house from the mains?	5

	(b) The spaces 5 and 4 have the same resistance and spaces 3 and 2 have respective resistances of 20Ω and 30Ω. Space 1 has a resistance double that of space 5. What is the net resistance for space 5. (c) What is the current in space 3? (d) What should be placed between the main connection and the rest of the house's electrical appliances to save them from accidental high electric current?	
	CHAPTER-13	
	SECTION - A	
143	A copper wire is held between the poles of a magnet.  The current in the wire can be reversed. The pole of the magnet can also be changed over. In how many of the four directions shown can the force act on the wire? (a) 1 (b) 2 (c) 3 (d) 4	1
144	Which of the following pattern correctly describes the magnetic field around a long straight wire carrying current? (a) straight lines perpendicular to the wire. (b) straight lines parallel to the wire. (c) radial lines originating from the wire. (d) concentric circles centred around the wire.	1
	SECTION - B	
145	Refer to the image below and state how the magnetic field pattern indicates regions where the magnetic field is stronger outside the magnet? What happens to the magnetic field when the current in the circuit is reversed?  	2
	SECTION - C	
146	Anannya responded to the question: Why do electrical appliances with metallic bodies are connected to the mains through a three pin plug, whereas an electric bulb can be connected with a two pin plug? She wrote: Three pin connections reduce heating of connecting wires. (i) Is her answer correct or incorrect? Justify. (ii) What is the function of a fuse in a domestic circuit?	2+1

147	A student fixes a white sheet of paper on a drawing board. He places a bar magnet in the centre and sprinkles some iron filings uniformly around the bar magnet. Then he taps gently and observes that iron filings arrange themselves in a certain pattern. (a) Why do iron filings arrange themselves in a particular pattern? (b) Which physical quantity is indicated by the pattern of field lines around the bar magnet? (c) State any two properties of magnetic field lines. **OR** A compass needle is placed near a current carrying wire. State your observations for the following cases and give reasons for the same in each case- (a) Magnitude of electric current in wire is increased. (b) The compass needle is displaced away from the wire.	3
CHAPTER-15		
SECTION - A		
148	In 1987, an agreement was formulated by the United Nations Environment Programme (UNEP) to freeze the production of "X" to prevent depletion of "Y". "X" and "Y" respectively referred here are: a) Ozone; CFCs b) CFCs; rays UV c) CFCs; Ozone d) UV rays; Diatomic oxygen	1
149	Which of the following features relates to biodegradable substances? a) Broken down by biological processes b) Remain inert c) Persist in environment for long time d) May harm the ecosystem	1
SECTION - B		
150	Study the food chain given below and answer the questions that follow:  a) If the amount of energy available at the third trophic level is 100 joules, then how much energy will be available at the producer level? Justify your answer. b) Is it possible to have 2 more trophic levels in this food chain just before the fourth trophic level? Justify your answer.	2

151	A lot of waste is generated in neighborhood. However, almost all of it is biodegradable. What impact will it have on the environment or human health?	2
	SECTION - C	
152	Why is damage to the ozone layer a cause for concern? What are its causes and what steps are being taken to limit this damage?	3

SIMILAR QUESTIONS MAY BE SET FROM CHAPTER NO. 14 & 16

Case Study based Questions (Consisting of more than one chapter)

Case **The Salt Story**

From: The New Indian Express 9 March 2021

The salt pans in Marakkanam, a port town about 120 km from Chennai are the third largest producer of salt in Tamil Nadu. Separation of salt from water is a laborious process and the salt obtained is used as raw materials for manufacture of various sodium compounds.

One such compound is Sodium hydrogen carbonate, used in baking, as an antacid and in soda acid fire extinguishers.

The table shows the mass of various compounds obtained when 1litre of sea water is evaporated

153 Which compound in the table reacts with acids to release carbon dioxide? 1

a) NaCl

b) $CaSO_4$

c) $CaCO_3$

d) $MgSO_4$

COMPOUND	FORMULA	MASS OF SOLID PRESENT /g
Sodium Chloride	NaCl	28.0
Magnesium Chloride	$MgCl_2$	8.0
Magnesium Sulphate	$MgSO_4$	6.0
Calcium Sulphate	$CaSO_4$	2.0
Calcium Carbonate	$CaCO_3$	1.0
TOTAL AMOUNT OF SALT OBTAINED		45.0

(Ch 2)

154 How many grams of Magnesium Sulphate are present in 135g of solid left by evaporation of sea water? (Ch 1) 1

a) 6g

b) 12g

c) 18g

d) 24g

155	What is the saturated solution of Sodium Chloride called? (Ch 3) a) Brine b) Lime water c) Slaked lime d) Soda water	1
156	What is the pH of the acid which is used in the formation of common salt? (Ch 2) a) Between 1 to 3 b) Between 6 to 8 c) Between 8 to 10 d) Between 11 to 13	1
	Assertion and Reason based Questions	
	The following questions consist of two statements - Assertion (A) **(a) Both A and R are true and R is the correct explanation of A** **(b) Both A and R are true and R is not the correct explanation of A** **(c) A is true but R is false** **(d) A is False but R is true**	
157	**Assertion:** Silver bromide decomposition is used in black and white photography. **Reason:** Light provides energy for this exothermic reaction.	1
158	**Assertion:** Amphibians can tolerate mixing of oxygenated and deoxygenated blood. **Reason:** Amphibians are animals with two chambered heart	1
159	**Assertion:** Decomposition of vegetable matter into compost is an endothermic reaction. **Reason:** Decomposition reaction involves breakdown of a single reactant into simpler products.	1
160	**Assertion:** Resins and gums are stored in old xylem tissue in plants. **Reason:**Resins and gums facilitate transport of water molecules.	1
161	**Assertion:** Fresh milk in which baking soda is added, takes a longer time to set as curd. **Reason:** Baking soda decreases the pH value of fresh milk to below 6.	1
162	**Assertion:** Rusting of Iron is endothermic in nature. **Reason:** As the reaction is slow, the release of heat is barely evident.	1
163	**Assertion:** Probability of survival of an organism produced through sexual reproduction is more than that of organism produced through asexual mode. **Reason:** Variations provide advantages to individuals for survival.	1
164	**Assertion:** Height in pea plants is controlled by efficiency of enzymes and is thus genetically controlled. **Reason:** Cellular DNA is the information source for making proteins in the cell.	1

165	**Assertion** : A compass needle is placed near a current carrying wire. The deflection of the compass needle decreases when the magnitude of the current in the wire is increased. **Reason** : The strength of a magnetic field at a point near the conductor increases on increasing the current.	1
166	**Assertion:** On freely suspending a current – carrying solenoid, it comes to rest in Geographical N-S direction. **Reason** : One end of current carrying straight solenoid behaves as a North pole and the other end as a South pole, just like a bar magnet.	1
167	**Assertion:** Biodegradable substances result in the formation of compost and natural replenishment. **Reason:** It is due to breakdown of complex inorganic substances into simple organic substances.	1
N.B. 1: Assertions and Reason based questions may be set from any chapter of the book which are included in the syllabus		
N.B. 2: Students, Teachers may visit kagojornao.com for the video classes available in the website.		

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