प्र. क्र. Q. No.			
1 (A)	(i)	(D)	(1 mark)
	(ii)	(A)	(1 mark)
	(iii)	(A)	(1 mark)
	(iv)	(C)	(1 mark)
	(v)	(D)	(1 mark)
1 (B)	(i)	Magnet	(1 mark)
	(ii)	White	(1 mark)
	(iii)	Air - 1.0003	(1 mark)
	(iv)	True	(1 mark)
	(v)	Swayam	(1 mark)

प्र. क्र.
Q. No. 2 (A)

Note : *In this question, students are required to write answers of any 2 questions out of 3. However, answers to all 3 questions are given here for the guidance of the students.*

(i) (1) Copper and aluminium are good conductors of electricity. **(1 mark)**

(2) Copper and aluminium have very low resistivity. Hence, when an electric current flows through a wire of copper or aluminium, heat produced is comparatively low. Therefore, for electric power transmission, copper or aluminium wire is used. **(1 mark)**

(ii) (1) Copper undergoes oxidation in air to form black copper oxide. Copper oxide reacts slowly with carbon dioxide in air and gains a green coat. This green substance is copper carbonate. **(1 mark)**

(2) Lemon and tamarind contain acid. The acid dissolves the green coating of basic copper carbonate present on the surface of a tarnished copper utensil and makes it shiny again. **(1 mark)**

(iii) (1) The valency of an element is determined by the number of valence electron in the outermost shell of an atom of an element. **(1 mark)**

(2) All the elements in a group have the same number of valence electrons. Therefore, elements in the same group should have the same valency. For example, the elements of group 1 contain only one valence electron; the valency of elements of group 1 is one. Similarly for group 2, the valency is two. **(1 mark)**

प्र. क्र.
Q. No. **2 (B)**

Note : *In this question, students are required to write answers to any 3 questions out of 5. However, answers to all 5 questions are given here for the guidance of the students.*

(i) (a) If the relative humidity is more than 60%, we feel that air is humid. **(1 mark)**

(b) If the relative humidity is less than 60%, we feel that air is dry. **(1 mark)**

(ii) $C_{12}H_{22}O_{11} \xrightarrow{\text{heat}} 12C + 11H_2O$ **(1 + 1 mark)**

(iii)

Mass	Weight
1. The mass of a body is the amount of matter present in it.	1. The weight of a body is the force with which the earth attracts it.
2. It has magnitude, but not direction.	2. It has both magnitude and direction.
3. It does not change from place to place.	3. It changes from place to place.
4. It can never be zero.	4. It is zero at the centre of the earth.

(Any two correct points; 1 mark each)

प्र. क्र.
Q. No. 2 (B)

(iv)

Type of satellite	The names of Indian satellite and launcher
(1) Navigational satellite	Satellite : IRNSS Launcher : PSLV
(2) Earth observation satellite	Satellite : IRS Launcher : PSLV

(Each correct blank ½ mark; Total 2 marks)

(v) The horizontal rows in the periodic table are called periods. ***(1 mark)***

The vertical columns in the periodic table are called groups. ***(1 mark)***

प्र. क्र. Q. No. **3**

Note : *In this question, students are required to solve any 5 questions out of 8. However, answers to all 8 questions are given here for the guidance of the students.*

(i) Solution :

Data : Mass of the moon $(M) = 7.34 \times 10^{22}$ kg

Radius of the moon $(R) = 1.74 \times 10^{6}$ m

$G = 6.67 \times 10^{-11}$ N·m^2/kg^2

Escape velocity $= v_{esc} = \sqrt{\frac{2GM}{R}}$ **(1 mark)**

$= \sqrt{\frac{2 \times 6.67 \times 10^{-11} \times 7.34 \times 10^{22}}{1.74 \times 10^{6}}}$ **(1 mark)**

$= \sqrt{\frac{13.34 \times 7.34 \times 10^{5}}{1.74}}$

$= \sqrt{\frac{1.334 \times 7.34 \times 10^{6}}{1.74}}$

$= \sqrt{\frac{1.334 \times 7.34}{1.74} \times 10^{3}}$

$= 2.372 \times 10^{3}$ m/s **(½ mark)**

$= 2.372 \times \frac{10^{3}}{10^{3}}$ km/s

$= 2.372$ km/s **(½ mark)**

Ans. Escape velocity on the surface of the moon $= 2.372$ km/s.

(ii) (a) Atomic number of this element is 11. **(1 mark)**

(b) It belongs to 1st group. **(1 mark)**

(c) It belongs to 3rd period. **(1 mark)**

(iii) Ray AB - Incident ray **(1 mark)**

Ray CD - Refracted ray **(1 mark)**

Ray GH - Emergent ray **(1 mark)**

प्र. क्र. Q. No. 3

(iv) (a) (1) The compounds formed from two units namely cation and anion are called ionic compounds. *(½ mark)*

(2) The cation and anion being oppositely charged has an electrostatic force of attraction called ionic bond. *(½ mark)*

(3) Sodium ion has a positive charge while chlorine ion has negative charge. These ions are attracted to each other and form ionic bond. *(½ mark)*

(4) Since NaCl possesses ionic bond, hence it is called an ionic compound. *(½ mark)*

(b) Two properties of ionic compound :

(1) Ionic compound conduct electricity in molten state and also in an aqueous solution. *(½ mark)*

(2) They are soluble in water and insoluble in solvents such as kerosine and petrol. *(½ mark)*

(v) Physical changes :

(a) Transformation of ice into water. *(½ mark)*

(d) Evaporation of water. *(½ mark)*

(f) Iron filings get attracted towards the magnet. *(½ mark)*

Chemical changes :

(b) Ripening of a fruit. *(½ mark)*

(c) Milk turned into curd. *(½ mark)*

(e) Digestion of food in the stomach. *(½ mark)*

(vi) (a) Iron has maximum specific heat capacity. The amount of wax melted shows that for a given mass of the element and fall in temperature, iron element (metal in this case) absorbs more heat than copper and lead and thus has maximum specific heat capacity. *(1 mark)*

(b) Lead has minimum specific heat capacity. This can be seen from the amount of wax melted in this case. *(1 mark)*

प्र. क्र. Q. No. 3

(c) Specific heat of an object : The amount of heat energy required to raise the temperature of a unit mass of an object by 1°C is called the specific heat of the object. *(1 mark)*

(vii) (a) Figure A → Fuse *(½ mark)*

Use : It melts and thereby protects the electrical circuits and appliances by stopping the flow of electric current when it exceeds a specific value. *(½ mark)*

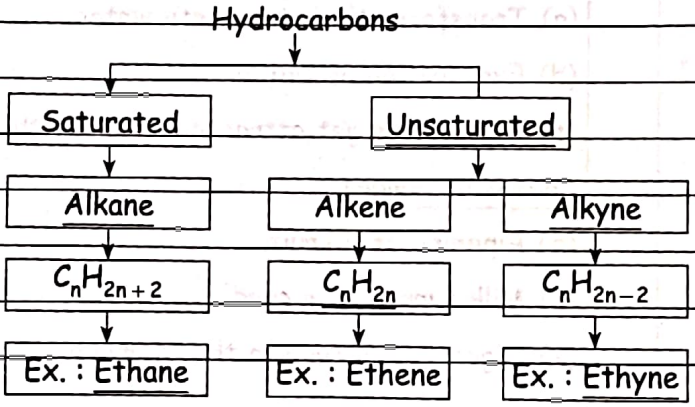
(b) Figure B → Miniature circuit breakers (MCB) switches. *(½ mark)*

Use : When the current in the circuit suddenly increases, this switch opens and current stops. *(½ mark)*

(c) Figure C → Galvanometer. *(½ mark)*

Use : It detects the presence of current in an electric circuit. *(½ mark)*

(viii)



(Each correct blank ½ mark; Total 3 marks)

प्र. क्र.
Q. No. **4**

Note : *Students are required to solve any one question out of two. However, here both questions have been solved for the guidance of the students.*

(i) (a) Defect Myopia or Nearsightedness of vision is represented in the figure. ***(1 mark)***

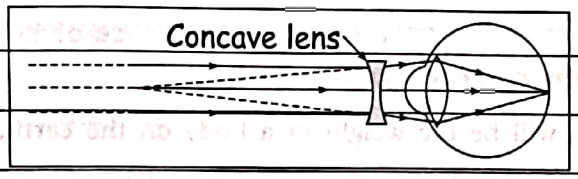
(b) Reasons :

(1) The curvature of the cornea and the eye lens increases. The muscles near the lens cannot relax so that the converging power of the lens remains large. ***(1 mark)***

(2) The eyeball elongates so that the distance between the lens and the retina increases. ***(1 mark)***

(c) This defect can be corrected by using a concave lens of proper focal length. ***(1 mark)***

(d)



Correction of myopic eye or nearsightedenss ***(1 mark)***

(ii)

Sr. No.	Common Name	Structural Formula	IUPAC Name
1.	Ethylene	$CH_2=CH_2$	Ethene
2.	Acetylene	$HC\equiv CH$	Ethyne
3.	Acetic acid	CH_3-COOH	Ethanoic acid
4.	Methyl alcohol	CH_3-OH	Methanol
5.	Acetone	$CH_3-CO-CH_3$	Propan-2-one

(Each correct blank 1 mark; Total 5 marks)