

**BOARD ACTIVITY SHEET: March 2025****Science and Technology Part - 1****Time: 2 Hours****Max. Marks: 40**

- Note:** i. All questions are compulsory.  
ii. Use of a calculator is not allowed.  
iii. The numbers to the right of the questions indicate full marks.  
iv. In case of MCQs [Q. No. 1(A)] only the first attempt will be evaluated and will be given credit.  
v. Scientifically correct, labelled diagrams should be drawn wherever necessary.

**Q.1. (A) Choose the correct alternative:****[5]**

- i. Alkaline earth metals have valency 2. This means that their position in the modern periodic table is in \_\_\_\_\_.  
(A) Group 2 (B) Group 16  
(C) Period 2 (D) d-block
- ii. The reaction in which ions in the reactants are exchanged to form a precipitate is called as \_\_\_\_\_ reaction.  
(A) Combination (B) Decomposition  
(C) Displacement (D) Double Displacement
- iii. \_\_\_\_\_ is used to make a solenoid type coil in an electric bulb.  
(A) Nichrome (B) Copper  
(C) Tungsten (D) Aluminium
- iv. Light changes its direction when going from one transparent medium to another transparent medium. This process is called \_\_\_\_\_.  
(A) Reflection (B) Dispersion  
(C) Scattering (D) Refraction
- v.  $\text{CaO} + \text{H}_2\text{O} \longrightarrow \text{Ca(OH)}_2 + \text{Heat}$  is an example of \_\_\_\_\_ reaction.  
(A) Exothermic (B) Electrolysis  
(C) Decomposition (D) Endothermic

**(B) Answer the following questions:****[5]**

- i. State whether true or false:  
A redox reaction takes place during cellular respiration.
- ii. Find the odd one out:  
Loudspeaker, microphone, electric motor, magnet.
- iii. What is the reason for twinkling of stars?
- iv. Match the columns:

Column 'A'		Column 'B'
Simple microscope	a.	used to observe minute objects
	b.	used to see distant objects
	c.	used for watch repair

- v. Name the behaviour of water between its temperature from  $0^\circ\text{C}$  to  $4^\circ\text{C}$ .

**Q.2. (A) Give scientific reasons (any two):****[4]**

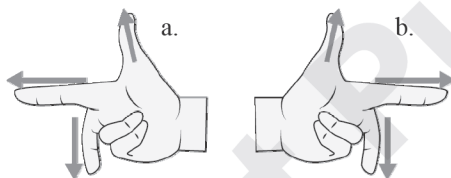
- i. While going from left to right within a period, the size of atom decreases.
- ii. For electric power transmission, copper or aluminium wire is used.
- iii. In some countries, ethanol is used as an additive to increase the efficiency of petrol.

**(B) Answer the following (any three):****[6]**

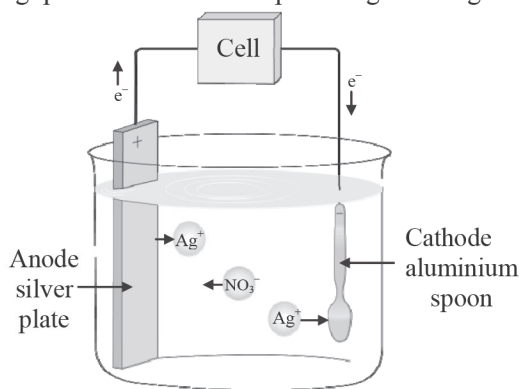
- Name and state the principle used to measure the specific heat capacity of a substance.
- What is done to prevent rusting of iron door of your house?
- Distinguish between mass and weight.
- The 'rocket' is a type of fire cracker used in Diwali.
  - Name the launcher.
  - Name the law on which its working is based.
- What is meant by decomposition reaction? Write the chemical reaction of decomposition of sugar on heating.

**Q.3. Answer the following questions (any five):****[15]**

- An iron ball of mass 3 kg is released from a height of 125 m and falls freely to the ground. Assuming that the value of  $g$  is  $10 \text{ m/s}^2$ , calculate:
  - Time taken by the ball to reach the ground.
  - Velocity of the ball on reaching the ground.
- Write the name and symbol of the element from the description:
  - The most electronegative atom.
  - The atom having smallest atomic mass.
  - The noble gas with the smallest atomic radius.
- What happens when copper reacts with concentrated nitric acid? What is the colour of the gas released during the reaction?
  - Write its balanced chemical equation.
  - Write the names of reactants and products.
- Name the following diagrams and explain the concept behind them:



- Answer the following with respect to the 'Formation of Rainbow':
  - Draw a neat diagram to show the formation of rainbow.
  - Name any *two* natural processes involved in formation of rainbow.
  - What does a small droplet of water act as?
- Name the following:
  - The *two* metals which can be cut with knife.
  - A sound is produced when certain metals are struck. Name this property of metals.
  - The non-metallic substance which is a good conductor of electricity.
- Answer the following questions with the help of the given diagram:





- (a) Name the process shown in the diagram.
- (b) How does this process take place?
- (c) Give *two* examples in which this process is used.

viii. Complete the following table:

	Type of the satellite	Function of the satellite	The names of the Indian satellite series and their launch vehicles
(a)	_____	Fix the location of any place on the earth's surface	_____
(b)	Weather satellite	_____	_____
(c)	_____	_____	IRS Launcher: PSLV

**Q.4. Answer any *one* of the following:**

[5]

- i.
  - (a) Draw a neat labelled diagram of human eye.
  - (b) What is the minimum distance of distinct vision for a normal human eye?
  - (c) Name the capacity of the eye lens to change its focal length as per need.
  - (d) Name the defect of eye vision in which the focussing power of eye lens decreases with age.
- ii. Atomic number of chlorine is 17.
  - (a) Write the electronic configuration of chlorine.
  - (b) What is the number of electrons in the valence shell of chlorine?
  - (c) Write the molecular formula of chlorine.
  - (d) Name the type of bond in the formation of chlorine molecule.
  - (e) Draw the electron dot structure of a chlorine molecule.