Indian School Al Wadi Al Kabir
Post-Midterm Examination (2025-2026)

Class: VIII	Subject: SCIENCE	Max. marks: 30
Date: 25/11/2025	Set - II	Time: 1 Hour

General Instructions:

Read the following instructions carefully.

i. All questions are compulsory. Marks are indicated against each section.
ii. The question paper comprises 4 pages and 15 questions in 5 sections: A, B, C, D and E.
*iii. Q 1 to Q 4 in **section A** -MCQ carry ONE mark each. Write the correct answer along with the option in the answer script.*
*iv. Q 5 to Q 7 in **section A** -Assertion and Reason carry ONE mark each.*
*v. Q 8 to Q 10 in **section B** are Short Answer Type Questions and carry TWO marks each.*
*vi. Q 11 to Q 13 in **section C** are Short Answer Type Questions and carry THREE marks each.*
*vii. Q 14 in **section D** is a Long Answer Type Question and carries FIVE marks.*
*viii. Q 15 in **section E** is a Case study/Paragraph question and carries THREE marks.*
ix. Write the same question number as given in the question paper.
x. Correction fluid should not be used in the answer script.
xi. Diagrams should be drawn using a pencil.

SECTION - A **(7X1=7)**

1. Arnav conducts an experiment using a long metallic wire wound into a coil. He connects the coil to a battery using a switch. When the switch is turned on, he brings a small compass near the coil and observes that the needle gets deflected. However, when he switches off the current, the compass needle returns to its original position. Based on this observation, when does the coil produce a magnetic field?
   (a) When the electric current stops flowing through the coil.
   (b) When the coil becomes hot due to the heating effect of the electric current.
   (c) When the electric current is flowing through the coil.
   (d) When the coil is brought near another magnet.
2. A student notices that after connecting five lemons in series, the LED glows brighter than with just one lemon. Why does the LED glow brighter with more lemons?
   (a) More lemons increase resistance.
   (b) More lemons increase the total voltage.
   (c) More lemons decrease current.
   (d) More lemons cool the LED.

3. While performing the activity, a student traps smoke in Gas Jar 'A' and covers it with a glass plate. When Gas Jar 'B' is placed upside down over the plate and the plate is removed, the smoke rises and fills Gas Jar 'B'. What does the movement of smoke into Gas Jar 'B' show?

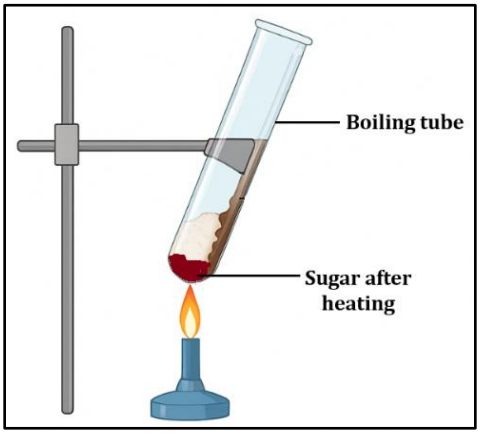
   (a) Smoke particles have a strong attraction.

   (b) Gases cannot mix.

   (c) Gases have a fixed volume.

   (d) Gas particles move freely in all directions.

4. Reema took a teaspoon of sugar in a boiling tube and heated it gently. As heating continued, she observed the sugar turning brown and then black, forming charcoal. What caused this change in sugar?



   (a) Sugar dissolved in water.

   (b) Sugar underwent decomposition due to heat.

   (c) Sugar mixed with air.

   (d) Sugar absorbed water from the air.

   For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below -

   (i) Both A and R are true, and R is the correct explanation of the assertion.

   (ii) Both A and R are true, but R is not the correct explanation of the assertion.

   (iii) A is true, but R is false.

   (iv) A is false, but R is true.

5. **Assertion (A):** The polarity (North and South poles) of an electromagnet can be reversed.

   Reason (R): The direction of current in the coil can be reversed, which changes the polarity of the electromagnet.

6. **Assertion (A):** Heating increases the movement of particles in matter.

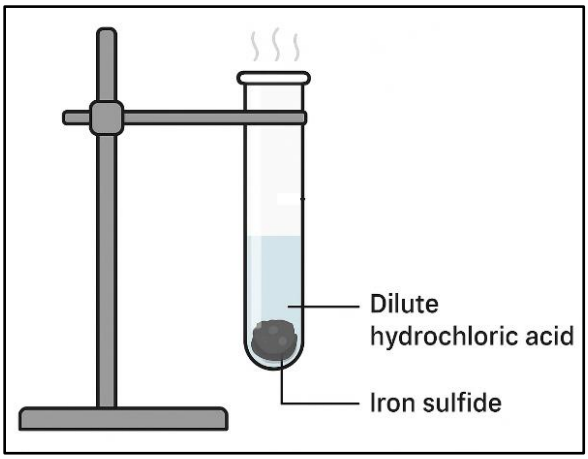
   Reason (R): Heating changes the state of matter from solid to liquid and liquid to gas.

7. **Assertion (A):** Sugar dissolved in water is a non-uniform mixture.

   Reason (R): In a uniform mixture, the components are evenly distributed and cannot be distinguished.

SECTION - B **(3X2=6)**

8. Define an electromagnet and mention **two** applications of lifting electromagnets.
9. Explain how a dry cell is constructed.
10. Observe the given figure and answer the following questions:



   (i) Write the **word equation** for the reaction between **iron sulfide** and **dilute hydrochloric acid**.

   (ii) Describe the odour of the gas released in this reaction.

SECTION - C **(3X3=9)**

11. (a) Explain how the strength of an electromagnet can be increased.

    (b) Draw a simple diagram of a voltaic cell and **label** its parts.

12. (a) What changes occur in the air inside a syringe when it is compressed and then allowed to expand?

    (b) Why does potassium permanganate spread faster in hot water than in cold water?

13. (a) Why does lime water turn milky when carbon dioxide is passed through it?

    (b) What is the difference between uniform and non-uniform mixtures?

SECTION - D **(1X5=5)**

14. (a) What do you understand by the term diffusion?

    (b) Why can your hand move freely in the air but not through a solid like wood?

    (c) Draw a diagram to show how particles are arranged in **solids** and **gases**.

SECTION - E **(1X3=3)**

15. Read the following passage /case study and answer the questions given below.

Elements, compounds, and mixtures are all around us. Water, which is essential for life, is a compound made of elements, hydrogen and oxygen. Elements like iron and aluminium are used to construct bridges, buildings, and vehicles. Chemists study how elements combine to form compounds, which allows them to develop life-saving medicines and vaccines to fight diseases. This knowledge also helps in producing fertilisers, improving crop yield and supporting agriculture. Engineers use knowledge of compounds and mixtures to create materials with specific properties. For example, they have developed alloys like stainless steel, a mixture made by physically combining several metals - iron, chromium, nickel - and a small amount of carbon, which makes it stronger and more durable than pure iron. An example of a 'wonder' material developed by material scientists is graphene aerogel. We would use graphene aerogel to clean oil spills in oceans and rivers because it is extremely light and highly absorbent. Its porous structure allows it to soak up oil efficiently without harming marine life.

(a) Why is stainless steel considered a mixture?

(b) How can graphene aerogel be used to solve environmental problems?

(c) Explain the importance of understanding elements, compounds, and mixtures in the fields of **medical science** and **agriculture**.