

**SAMAGRA SHIKSHA KERALA**  
**SUMMATIVE ASSESSMENT-TERM III- 2025-26**  
**CHEMISTRY**

Class : IX

Score : 40  
 Time : 1 ½ Hours

**Instructions**

- First fifteen minutes are cool off time. Read the questions carefully and plan the answers during this time.
- Write the answers according to the instructions.
- Consider the score while writing the answers.
- Answer only one choice for questions having choice A and B.

Answer all the questions from 1 to 4 . Each question carries 1 score. (4 x 1 = 4)

1. **Assertion (A)** : The reaction  $Zn + 2HCl \rightarrow ZnCl_2 + H_2$  is an example of a displacement reaction.

**Reason (R)** : Here, two compounds react each other and exchange their ions to form two new compounds.

Which of the following is correct? (1)

- A. Both A and R are correct. R is the correct explanation of A.
- B. Both A and R are correct. R is not the correct explanation of A.
- C. A is correct but R is incorrect.
- D. A is incorrect but R is correct.

2. A few statements related to artificial drinks/food items are given below:

Statement 1: Tartrazine is the chemical used to give yellow colour to food items and drinks.

Statement 2: Chemicals added to artificial drinks to prevent particles from settling down are called preservatives.

Statement 3: Indigo carmine is the chemical added to give the fragrance of pineapple to food items.

Which of the following is correct regarding to these statements? (1)

- A. Statements 1 and 2 are correct but 3 is incorrect.
- B. Statements 1, 2, and 3 are correct.
- C. Statement 1 is incorrect but 2 and 3 are correct.
- D. Statement 1 is correct but 2 and 3 are incorrect.

3. Gas X turns clear lime water milky. Identify the gas. (1)

- A. Carbon dioxide
- B. Hydrogen
- C. Chlorine
- D. Nitrogen

4. Match the following:

Isotope	Use
P) Fe - 59	w) For the treatment of cancer
Q) Co - 60	x) To determine the age of fossils
R) C - 14	y) To find leaks in industrial pipelines
	z) To diagnose Anaemia

Choose the correct answer from those given below:

(1)

	P	Q	R
A.	w	x	y
B.	z	w	x
C.	y	z	w
D.	x	y	z

Two questions from 5 to 11 have choice. Each question carries 2 scores.

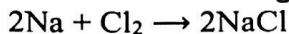
(7x 2 =14)

5. The solubility of potassium nitrate in water at 40°C is 68g.  
a) What is meant by solubility? (1)  
b) What is the amount of solute required to prepare a saturated solution of potassium nitrate in 50g of water at 40°C? (1)
6. Different types of coal are found based on their carbon content.  
a) Which form of coal contains the highest amount of carbon? (1)  
b) Which form of coal contains the lowest amount of carbon? (1)
7. In element X, electrons are present in four shells. Its last two electrons enter the penultimate shell.  
a) Write the electron configuration of this element. (1)  
b) To which period does this element belong? (1)
8. (A) Carbon dioxide is used in the manufacture of baking soda and washing soda.  
a) Write the chemical formulae of baking soda and washing soda. (1)  
b) What is dry ice? (1)
- OR**
- (B) BaCl<sub>2</sub> is a salt that can be used to identify carbonate salts.  
a) What is the colour of the precipitate formed when barium chloride solution is added to a solution of sodium carbonate? (1)  
b) What change occurs when dilute hydrochloric acid is added to this precipitate? (1)
9. A few details regarding an organic compound are given below:  
• It is an aromatic compound.  
• Its molecular formula is C<sub>6</sub>H<sub>6</sub>  
a) Draw the structure of this compound. (1)  
b) What is the name of this compound? (1)
10. Nitrogen is the most abundant gas in the atmosphere.  
a) Write any one use of Nitrogen. (1)  
b) Write any one merit and any one demerit of organic fertilizers. (1)

11. (A) Magnesium combines with oxygen to form magnesium oxide. (1)
- a) Write the balanced chemical equation for this reaction. (1)
  - b) In magnesium oxide the oxidation state of magnesium is +2 and that of oxygen is -2. Identify the reducing agent in this chemical reaction. (1)

**OR**

(B) Analyse the chemical reaction given below:



( Hint: Atomic Number Na = 11, Cl = 17)

- a) Which is the oxidising agent in this reaction? (1)
- b) Write the oxidation equation. (1)

**Two questions from 12 to 17 have choice. Each question carries 3 scores. (6x 3 =18)**

12. Take 25mL of concentrated hydrochloric acid in one beaker and equal volume of diluted hydrochloric acid in another. Add magnesium pieces of the same size to both.
- a) In which beaker is the chemical reaction faster? (1)
  - b) Which factor influenced the rate of reaction here? (1)
  - c) Which gas is produced as a result of this reaction? (1)
13. (A) HCl is a covalent compound. (1)
- a) Illustrate the chemical bonding in it using electron dot diagram. (1)
  - b) Write any two general characteristics of covalent compounds. (2)

**OR**

(B) The atomic number of Sodium is 11 and that of Oxygen is 8.

- a) Illustrate the formation of the compound when these elements combine together, using electron dot diagram. (1)
  - b) Which is the cation in this compound? (1)
  - c) Write the chemical formula of this compound. (1)
14. Petroleum is formed by the chemical transformation of the remains of living organisms over thousands of years.
- a) Which method is used to separate the components of petroleum? (1)
  - b) Which is the main component of LPG? (1)
  - c) Write the structural formula of this component. (1)
15. Some hints regarding a gas are given below:
- i) It has a greenish-yellow colour.
  - ii) It belongs to the Halogen family.
- a) Which is the gas mentioned here? (1)
  - b) What are the reactants needed to prepare this gas in the laboratory? (1)
  - c) During the production of this gas, it is passed through concentrated sulphuric acid. Why? (1)
16. (A) Carbon is an element that exhibits allotropy. (1)
- a) What is meant by allotropy? (1)
  - b) Diamond, a crystalline allotrope of carbon, does not conduct electricity. Why? (1)
  - c) Which allotrope of carbon is known as 'Buckyballs'? (1)

OR

(B) Oxygen and Ozone are allotropes.

- a) Which reactant is used to prepare oxygen in the laboratory? (1)
  - b) Write the chemical equation for the cyclic process that maintains a constant level of ozone in the atmosphere. (1)
  - c) CFC's cause the depletion of the ozone layer. How? (1)
17. Beaker A contains a true solution and Beaker B contains a suspension.
- a) Record your observations when a strong beam of light is passed through each of these two beakers. (1)
  - b) What do you observe if both beakers are left undisturbed for some time? (1)
  - c) Write the name of the mixture in which particles cannot be separated by filtration but the path of visible light is very clear. (1)

**Question 18 has choice. It Carries 4 scores**

**(1 x 4 =4)**

18. (A). The molecular formula of an open chain hydrocarbon is  $C_5H_{10}$ .

- a) Write one structural formula of this compound. (1)
- b) What is the name of the homologous series to which this compound belongs? (1)
- c) Write the structural formula and IUPAC name of a cyclic compound having the same molecular formula. (2)

OR

(B) The IUPAC name of a compound is cyclobutene.

- a) Illustrate the structure of this compound. (1)
- b) Write the molecular formula of this compound. (1)
- c) Write the structural formula and IUPAC name of an open-chain hydrocarbon having the same molecular formula. (2)