SET A

E 906–Ch

SAMAGRA SHIKSHA KERALA
SUMMATIVE ASSESSMENT-TERM II- 2025-26
CHEMISTRY

Std IX

Score : 40
Time : 1½ 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 atomic number of potassium is 19 and its electron configuration is 2, 8, 8, 1.
   Reason (R) : The maximum number of electrons that can be accommodated in the outermost shell of any atom is 8.
   Which among the following is correct? (1)

   (A) Both A and R are true, and R is not the correct explanation of A.
   (B) Both A and R are true, but R is the correct explanation of A.
   (C) A is true, but R is false.
   (D) A is false, but R is true.

2. Some statements related to the characteristics of ionic compounds are given below.

   Statement 1. These are generally insoluble in water.
   Statement 2. These are non-volatile and hard.
   Statement 3. These generally have high melting and boiling points.
   Statement 4. They conduct electricity in the solid state.

   Which of the following is correct regarding these statements? (1)
   A. Statements 1, 2, and 3 are correct, but 4 is incorrect.
   B. Statements 1, 2, 3, and 4 are correct.
   C. Statement 1 is incorrect, but 2, 3, and 4 are correct.
   D. Statements 1 and 4 are incorrect, but 2 and 3 are correct.

3. Find the relation and fill in the blanks: (1)
   Catalyst used in Haber process : Fe
   Catalyst used in Contact process : ___
   (Manganese dioxide, Vanadium pentoxide, Phosphoric acid, Hydrogen peroxide).

4. Electron configuration and valency of some elements are given. Match the following.

Electron configuration	Valency
X) 2, 8, 3	p) 7
Y) 2 , 7	q) 3
Z) 2, 8, 2	r) 1
	s) 2

Choose the correct answer from the options given below. (1)

	X	Y	Z
A)	q	p	s
B)	s	r	q
C)	q	r	s
D)	r	p	q

Two questions from 5 to 11 have choice. Each question carries 2 scores. (7x 2 =14)

5. Some compounds and the electronegativity values of their constituent elements are given. Analyse it and answer the questions.

i) CH_4 ii) K_2O iii) NH_3
(H = 2.20, C = 2.55, K = 0.82, O = 3.44 N = 3.04)

a) Which of these is an ionic compound? (1)
b) Give reason for your answer. (1)

6. **(A)** Some information about an atom is given below.
- Electrons are present in K, L and M shells.
- There are 7 electrons in the M shell.
- This atom has 18 neutrons.

a) Illustrate the orbit electron configuration of this atom. (1)
b) What is the mass number of this atom? (1)

OR

(B) Symbols of some elements are given below.

$^{12}_{6}C$, $^{40}_{18}Ar$, $^{13}_{6}C$, $^{40}_{19}K$, $^{15}_{7}N$

a) Which pair has equal number of total particles in the nucleus? (1)
b) By what name are these atoms known? (1)

7. Ammonia is the compound formed when Nitrogen and Hydrogen combine.
a) Write the balanced chemical equation for this reaction. (1)
b) What is the mass of ammonia formed when 28 g nitrogen and 6 g hydrogen reacts completely? (1)

8. **(A)** A double decomposition reaction is given below.

$$NaCl + AgNO_3 \longrightarrow \underset{A}{\text{.....}} + \underset{B}{\text{.....}}$$

a) Complete the above equation and identify A and B. (1)

b) What is a double decomposition reaction? (1)

OR

(B) When Ammonium dichromate is heated Chromium trioxide, water vapour, and Nitrogen are formed.

a) By what name is this chemical reaction known? (1)

b) Write another example for such a chemical reaction using a chemical equation. (1)

9. Find out the oxidation number of manganese in the following compounds (2)

a) Mn_2O_7 b) MnO_2

(Hint : Oxidation number of O = -2)

10. The elements in groups 3 to 12 of the periodic table are called transition elements.

a) Why are they called transition elements? (1)

b) Among the elements of these groups, in which shell are the electrons of the highest energy filled? (1)

11. A solution is prepared by adding 2 g NaCl to 18 g water.

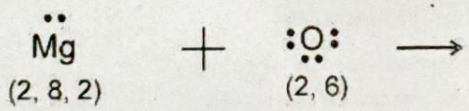
a) Which is the solute in this solution? (1)

b) Calculate the mass percentage of the solute in the solution. (1)

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

12. Magnesium oxide is an ionic compound.

a) Complete the electron dot diagram showing the formation of magnesium oxide. (1)



b) How many electrons are transferred from magnesium to oxygen? (1)

c) Which is the anion in this compound? (1)

13. Highly reactive metals like Zinc, Magnesium etc react with dilute Hydrochloric acid to produce a gas that burns with a pop sound.

a) Which is the gas that burns with a pop sound? (1)

b) Which metal, Zinc or Magnesium, reacts more vigorously with dilute Hydrochloric acid? (1)

c) The reaction of metals like Zinc, Magnesium etc with dilute Hydrochloric acid is a displacement reaction. What is meant by displacement reaction? (1)

14. **(A)** $Mg + Cl_2 \longrightarrow MgCl_2$

(Hint : Atomic number Mg -12 , Cl - 17)

a) Which atom is reduced in this reaction? (1)

b) Which is the reducing agent? (1)

c) Write the equation of oxidation reaction. (1)

OR

(B) $H_2 + Cl_2 \longrightarrow 2HCl$

(Hint : Oxidation number H = +1, Cl = -1)

a) Whose oxidation number is increased in this reaction? (1)

b) Which is the oxidising agent? (1)

c) This is a redox reaction. Why? (1)

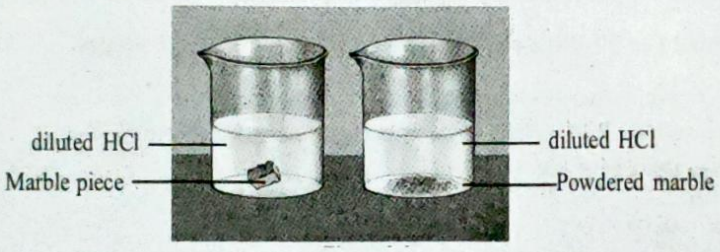
15. Observe the items given in the box.

Sodium thiosulphate. Hydrochloric acid, Boiling tube, Spirit lamp, water

a) Using the materials given in box, write the procedure for the experiment that proves the temperature influences the rate of a chemical reaction. (2)

b) Why does the rate of a chemical reaction increase when temperature increases? (1)

16. Observe the given figure and answer.



a) Here, which factor influences the rate of reaction? (1)

b) Which gas is evolved as a result of the reaction? (1)

c) Write the chemical equation for the reaction. (1)

17. (A) Elements X and Y have three shells each. (Symbols are not real)
Element X belongs to Group 13, element Y to Group 16.

a) Write the electron configuration of element X. (1)

b) To which family does the element Y belong? (1)

c) Which atom has a larger atomic size? (1)

OR

(B) X is an element in the third period (Symbol is not real). To attain octet electron configuration, it loses two electrons during reactions.

a) Write the electron configuration of X. (1)

b) To which group does it belong? (1)

c) Write the electron configuration of the noble gas in the same period. (1)

Question 18 has choice. It carries 4 scores. **(1 x 4 =4)**

18. **(A)** In neutralization reactions, the negative ion of an acid and the positive ion of an alkali combine to form the salt.

a) Which acid and alkali are used to prepare calcium phosphate? (2)

b) What is the positive ion present in this alkali? (1)

c) Write the chemical formula of the salt. (1)

OR

(B) Some hints about an alkali and an acid are given.

- The positive ion of the alkali is K^+.
- The negative ion of the acid is SO_4^{2-}.

a) What is the chemical formula of the alkali? (1)

b) Write the chemical formula of the acid. (1)

c) Write the equation representing the reaction between the acid and the alkali. (1)

d) Write the name of the salt formed by this reaction. (1)