SECOND TERM SUMMATIVE ASSESSMENT 2026-27

MODEL QUESTION PAPER

CHEMISTRY

Std: X SET 2 **Score: 40**

Cool-off time: 15 minutes **Time: 1½ Hours**

Instructions

- The first 15 minutes is cool-off time. Use it to read the questions and plan your answers.
- Answer according to the instructions and the score given for each question.
- For questions with a choice (A or B), answer only one.

Answer all questions from 1 to 4. Each question carries 1 score. **(4 × 1 = 4)**

1. In a galvanic cell, oxidation takes place at the (1)

A. cathode B. salt bridge C. anode D. electrolyte

2. Two statements are given. (1)

Statement 1: Equal volumes of all gases at the same temperature and pressure contain the same number of molecules.

Statement 2: At constant temperature and pressure, the volume of a gas is inversely proportional to the number of moles.

A. Both statements are correct.

B. Statement 1 is correct but statement 2 is wrong.

C. Statement 2 is correct but statement 1 is wrong.

D. Both statements are wrong.

3. Match the ores with the metals. (1)

Ore	Metal
a) Haematite	(i) Zinc
b) Bauxite	(ii) Iron
c) Calamine	(iii) Aluminium

A. a-(ii), b-(iii), c-(i) B. a-(iii), b-(ii), c-(i)

C. a-(i), b-(iii), c-(ii) D. a-(ii), b-(i), c-(iii)

4. Which subshell is filled with electrons immediately after 4s? (1)

A. 4p B. 3d C. 4d D. 5s

Answer all questions from 5 to 11. Questions 7 and 11 have choice. Each question carries 2 scores. **(7 × 2 = 14)**

5. a) Write the structural formula of a position isomer of but-1-ene. (1)

b) Write the name of a functional isomer of ethanol. (1)

6. a) How many orbitals are there in a p subshell? (1)

b) Find the (n + l) values of 4s and 3d. Which of them is filled first? (1)

7. (A) An element has atomic number 24.

a) To which block does it belong? (1)

b) Write its period and group. (1)

OR

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(B) Why are the f block elements placed separately at the bottom of the periodic table? What are they also called? (2)

8. A balloon filled with air bursts when it is kept in hot sunlight for a long time.
a) Name the gas law related to this. (1)
b) Explain the reason. (1)

9. Molten sodium chloride is electrolysed.
a) Name the products at the cathode and at the anode. (1)
b) Why is sodium chloride used in the molten state? (1)

10. A copper plate is dipped in zinc sulphate solution, and a zinc plate in copper sulphate solution.
a) In which case does a reaction take place? (1)
b) What change in colour is seen in that solution? (1)

11. (A) Find the following for 11.2 L of oxygen gas at STP. (Atomic mass of O = 16)
a) Number of moles (1)
b) Mass (1)

OR

(B) (Atomic mass of Na = 23)
a) How many moles of atoms are there in 46 g of sodium? (1)
b) How many atoms does it contain? (1)

Answer all questions from 12 to 17. Questions 12 and 17 have choice. Each question carries 3 scores. (6 × 3 = 18)

12. (A) A galvanic cell is made with magnesium and copper.
a) Identify the anode and the cathode. (1)
b) Write the overall cell reaction. (1)
c) What is the function of the salt bridge? (1)

OR

(B) A copper ornament is to be gold plated.
a) What is used as the anode? (1)
b) What is used as the cathode? (1)
c) What kind of solution is used as the electrolyte? (1)

13. Two moles of a gas occupy 48 L at a certain temperature and pressure.
a) What will be the volume of 5 moles of the gas at the same temperature and pressure? (1)
b) State the law used. (1)
c) What will happen to the volume if the number of moles is halved? (1)

14. The atomic number of an element is 29.
a) Write its subshell electron configuration. (1)
b) To which block does it belong? (1)
c) Find its period and group. (1)

15. 10 g of calcium carbonate is heated: $CaCO_3 \rightarrow CaO + CO_2$. (Ca = 40, C = 12, O = 16)
a) How many moles of $CaCO_3$ are taken? (1)
b) Find the mass of CO_2 produced. (1)
c) Find the volume of CO_2 at STP. (1)

16. A sulphide ore is concentrated by froth flotation.
a) Write the principle of froth flotation. (1)

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b) Name an ore that is concentrated by this method. (1)
c) What is the role of pine oil in this process? (1)

17. (A) Polythene and PVC are addition polymers.
a) Name the monomer of polythene. (1)
b) What is addition polymerisation? (1)
c) Name the monomer of PVC. (1)

OR

(B) Brine is electrolysed in industries.
a) Name the products obtained. (1)
b) Write the reaction taking place at the anode. (1)
c) Write one use of any one product. (1)

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

18. (A) Methane burns as $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$. 16 g of methane is burnt completely. (C = 12, H = 1, O = 16)
a) How many moles of oxygen are needed? (1)
b) Find the mass of CO_2 formed. (1)
c) Find the volume of CO_2 at STP. (1)
d) How many molecules of water are formed? (1)

OR

(B) The order of reactivity of some metals is Mg > Zn > Fe > Cu > Ag.
a) Which of the cells Mg–Cu, Zn–Cu and Fe–Cu gives the highest voltage? (1)
b) Which is the anode in a Zn–Ag cell? (1)
c) Write the reaction at the cathode of the Zn–Ag cell. (1)
d) Which metals in this list cannot displace hydrogen from dilute acids? (1)

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