SECOND TERM SUMMATIVE ASSESSMENT 2026-27

MODEL QUESTION PAPER

CHEMISTRY

Std: X SET 1 **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. Which substance is formed at the anode during the electrolysis of molten sodium chloride? (1)

A. Sodium B. Chlorine C. Hydrogen D. Oxygen

2. Two statements are given. (1)

Statement 1: One mole of any gas at STP occupies 22.4 L.

Statement 2: One mole of oxygen gas contains 6.022×10^{23} oxygen atoms.

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 methods of concentration of ores with their uses. (1)

A	B
a) Hydraulic washing	(i) Sulphide ores
b) Froth flotation	(ii) Ore or impurity attracted by a magnet
c) Magnetic separation	(iii) Ore particles heavier than the impurities

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

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

4. Assertion (A): Zinc displaces copper from copper sulphate solution. (1)

Reason (R): Zinc is more reactive than copper.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not the correct explanation of A.

C. A is correct but R is wrong.

D. Both A and R are wrong.

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 IUPAC name of $CH_3–CH(CH_3)–CH_3$. (1)

b) Write the structural formula of propanal. (1)

6. a) What is the maximum number of electrons that can be accommodated in a d subshell? (1)

b) Write the subshell electron configuration of iron (atomic number 26). (1)

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7. (A) The subshell electron configuration of an element X is $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^{10}\ 4s^2\ 4p^5$. (Symbol is not real.)

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

b) Find its period and group. (1)

OR

(B) Write any two characteristics of d block elements. (2)

8. A gas occupies 6 L at a pressure of 1 atm. The pressure is increased to 3 atm, keeping the temperature constant.

a) Find the new volume. (1)

b) State the gas law applied here. (1)

9. An iron spoon is to be electroplated with silver.

a) Which should be made the cathode? (1)

b) Suggest a suitable electrolyte. (1)

10. "All ores are minerals, but all minerals are not ores."

a) Explain the statement. (1)

b) Name the chief ore of aluminium. (1)

11. (A) The molecular mass of water is 18.

a) How many moles are there in 36 g of water? (1)

b) How many water molecules does it contain? (1)

OR

(B) (Atomic masses: Ca = 40, C = 12, O = 16)

a) Find the gram molecular mass of $CaCO_3$. (1)

b) What is the mass of 0.5 mole of $CaCO_3$? (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 using zinc and copper electrodes dipped in their salt solutions.

a) Which electrode is the anode? (1)

b) Write the direction of flow of electrons in the external circuit. (1)

c) Write the equation of the reaction at the cathode. (1)

OR

(B) Copper sulphate solution is electrolysed using copper electrodes.

a) Write the reaction at the cathode. (1)

b) Write the reaction at the anode. (1)

c) Write one industrial use of this process. (1)

13. A gas has a volume of 300 cm^3 at 27 °C. It is heated to 127 °C at constant pressure.

a) Calculate its new volume. (2)

b) State the law used. (1)

14. The atomic numbers of chromium and copper are 24 and 29.

a) Write their subshell electron configurations. (2)

b) Why are these configurations different from the expected order of filling? (1)

15. 4.4 g of carbon dioxide is taken at STP. (Molecular mass of CO_2 = 44)

a) How many moles of CO_2 is this? (1)

b) What is its volume at STP? (1)

c) How many molecules are present in it? (1)

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16. Bauxite is concentrated by leaching.

a) What is leaching? (1)

b) Name the chemical used for the leaching of bauxite. (1)

c) Why is froth flotation used for sulphide ores? (1)

17. (A) Complete the following and name the type of each reaction.

a) $CH_2=CH_2 + H_2 \rightarrow$ _____ (1)

b) $CH_4 + Cl_2 \rightarrow$ _____ + HCl (1)

c) Write the balanced equation for the complete combustion of methane. (1)

OR

(B) Concentrated sodium chloride solution (brine) is electrolysed.

a) Name the gas formed at the anode. (1)

b) Name the gas formed at the cathode. (1)

c) Which compound is left in the solution? (1)

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

18. (A) Ammonia is produced by the reaction $N_2 + 3H_2 \rightarrow 2NH_3$. (Atomic masses: N = 14, H = 1)

a) How many moles of ammonia are formed from 6 moles of hydrogen? (1)

b) What mass of nitrogen is needed to produce 34 g of ammonia? (1)

c) What volume of hydrogen at STP is needed to produce 2 moles of ammonia? (1)

d) How many molecules are present in 34 g of ammonia? (1)

OR

(B) The atomic numbers of four elements P, Q, R and S are 11, 17, 20 and 26. (Symbols are not real.)

a) Which of these is a d block element? (1)

b) Write the subshell electron configuration of R. (1)

c) Write the chemical formula of the compound formed between P and Q. (1)

d) Find the period and group of S. (1)

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