Summative Assessment – Term II 2025-26

Model question paper 1 **CHEMISTRY**

Class : X **Score : 40** **Time : 1½ Hours**

INSTRUCTIONS :

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

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

1. Which quantum number determines the shape of the subshell? (Principal, Azimuthal, Magnetic, Spin)

2. Match the following.

3.			
(a)	Boyle's law	(i)	V ∝ T
(b)	Charles' law	(ii)	PV = constant
(c)	Avogadro's law	(iii)	V ∝ n

Choose the correct matching from the options below.

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

3. Which of the following metals can displace hydrogen from dilute acids? (Copper, Zinc, Silver, Gold)

4. Statement I : The maximum number of electrons in an orbital is 2.
   Statement II : Each orbital is characterised by three quantum numbers n, l and m
   . Which of the following is correct about these statements?
   A. Both statements are correct and II is the correct explanation of I
   B. Both are correct but II is not the explanation of I
   C. Statement I is correct, Statement II is wrong
   D. Statement I is wrong, Statement II is correct

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

5. The electron configuration of an element is $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^5$.
   a) Identify the element.
   b) To which block does it belong?

6. An element has atomic number 20.
   a) Write its subshell electronic configuration.
   b) How many unpaired electrons are present in it?

7. 44.8 L of a gas at STP weighs 88 g.
   a) Calculate the molar mass of the gas.
   b) Identify the gas.

   OR

   At constant temperature, the pressure of 400 mL of a gas is increased from 760 mm Hg to 1520 mm Hg.
   a) Name the gas law applicable here.
   b) Calculate the new volume of the gas.

8. Complete the table.

Electrolyte	Electrode	Product at cathode	Product at anode
Molten NaCl	–		
Aqueous NaCl (concentrated)	–		

9. During the electrolysis of acidified water, oxygen gas is liberated at the anode.
   a) Write the half-reaction taking place at the anode.
   b) Why is water acidified before electrolysis?

10. Name the processes A, B and C.
    $2ZnS + 3O_2 \rightarrow (A) \rightarrow 2ZnO + 2SO_2$
    $ZnO + C \rightarrow (B) \rightarrow Zn + CO$
    Impure copper is refined by (C).

    OR

    a) Name the ore of aluminium.
    b) Write any two steps involved in the extraction of aluminium from its ore.

11. Write any two advantages of stainless steel over ordinary steel.

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

12. Analyse the given data and answer the questions. Principal quantum number n = 3
    a) Name the shell.
    b) How many subshells are present in this shell? Name them.
    c) What is the maximum number of electrons that can be accommodated in this shell?

    OR

    The last electron of an atom has the quantum numbers n = 4, l = 1, m = –1, s = +½.
    a) Identify the subshell in which the electron is present.

b) Write the name of the element if it is the last electron (atomic number = 30).
c) To which block does this element belong?

13. 11.2 L of oxygen gas at STP reacts completely with a metal to form its oxide. The mass of metal that reacted is 16 g.
a) Write the balanced chemical equation.
b) Find the equivalent mass of the metal.
c) Identify the metal.

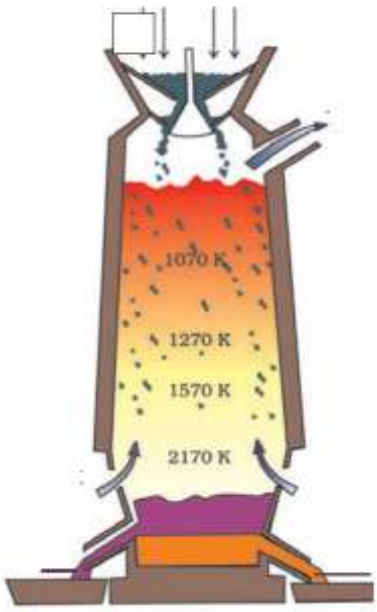
OR

5.6 L of a gas at STP has mass 11 g.
a) Calculate the molecular mass of the gas.
b) If the gas is diatomic and contains only one type of atom, identify the gas.
c) Write its electron dot structure.

14. The reactivity series of some metals is given below.
K > Na > Ca > Mg > Al > Zn > Fe > Sn > Pb > H > Cu > Ag
a) Which metal is extracted by electrolysis of its molten chloride?
b) Which metal is used for galvanisation? Why?
c) A piece of zinc is dropped into copper sulphate solution. Predict what happens and write the balanced equation.

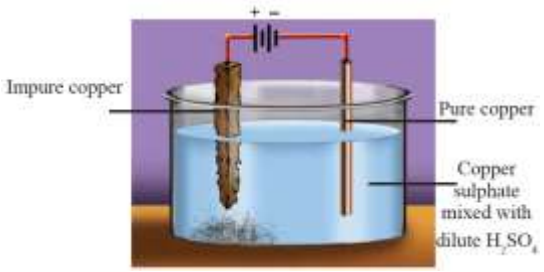
15. a) What is meant by corrosion?
b) Write any two methods to prevent rusting of iron.
c) Explain galvanisation with an example.

16. Observe the diagram of blast furnace



a) Name the raw materials charged from the top.
b) Identify the reactions taking place in the lower and upper regions.
c) Write the overall reaction for the reduction of haematite.

17. Observe the diagram of electrolytic refining of copper



a) Which is the anode and which is the cathode?
b) Write the reactions taking place at both electrodes.
c) What is the role of copper sulphate solution?

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

18. (A) Answer any FOUR of the following:
a) Write the subshell electronic configuration of Cr (Z = 24). Give reason.
b) 2.8 L of a gas at STP weighs 4 g. Find its molecular mass.
c) Why is aluminium not extracted by carbon reduction?
d) Write any two differences between calcination and roasting.
e) What is an alloy? Give two examples with their uses.
f) Why is sodium kept immersed in kerosene?

OR

(B) A fixed mass of a gas occupies 5.6 L at STP.
a) How many moles of gas are present?
b) If the temperature is raised to 546 K and pressure is reduced to half, calculate the new volume (pressure constant initially = 1 atm).
c) The same gas is allowed to react completely with 5.6 L of oxygen at same temperature and pressure to produce carbon dioxide and water vapour.
(i) Write the balanced chemical equation.
(ii) Identify the gas and name the law on which your answer is based.