Summative Assessment – Term II 2025-26
Model Question Paper 2 – 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 subshell has dumbbell-shaped orbitals? (s, p, d, f)

2. Match the following.

(a) Roasting	(i) Heating in absence of air
(b) Calcination	(ii) Heating sulphide ore in air
(c) Avogadro's hypothesis	(iii) Equal volumes contain equal number of molecules

Choose the correct matching:
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 is used as cathode in the electrolytic refining of copper? (Impure copper, Pure copper, Graphite, Iron)

4. Statement I : The maximum number of electrons in n = 3 shell is 18. Statement II : The formula to find maximum electrons in a shell is $2n^2$. Which option is correct?
A. Both correct, II explains I
B. Both correct, II does not explain I
C. I correct, II wrong
D. Both wrong

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

5. The atomic number of an element is 17.
a) Write its subshell electronic configuration.
b) Name the group and period to which it belongs.

OR Write the subshell electronic configuration of the element with atomic number 26. Why is it an exception to Aufbau principle?

6. 11.2 L of a gas at STP weighs 16 g. a) Calculate its molar mass. b) Identify the gas.

7. Complete the table:

Electrolyte	Product at Cathode	Product at Anode
Aqueous $CuSO_4$ (with Cu electrodes)		
Acidified water		

9. Why is anode made of graphite and not metal during electrolysis of alumina?

10. Name the processes:
$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$ → (A)
$Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$ → (B)
The ore containing iron is concentrated by (C).

OR a) What is an alloy? Give one example.
b) Why is duralumin used in aircraft bodies?

11. Write any two preventive methods of corrosion other than galvanisation.

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

12. Principal quantum number n = 4
a) Name the shell.
b) How many orbitals are present in this shell?
c) Write the subshells present and the maximum electrons each can hold.

OR
The four quantum numbers of the valence electron of potassium are n=4, l=0, m=0, s=+½
a) In which subshell is this electron present?
b) How many electrons are present in the valence shell?
c) To which block does potassium belong?

13. 5.6 L of nitrogen gas at STP reacts with hydrogen to form ammonia. a) Write the balanced chemical equation. b) Calculate the volume of ammonia formed at STP. c) Name the gas law used.

OR 16 g of oxygen gas at STP occupies a) How many moles? b) How many molecules? c) What is its volume at STP?

14. The reactivity series of metals is: K > Na > Ca > Mg > Al > Zn > Fe > Pb > H > Cu > Ag
a) Which metal is extracted from its molten chloride?
b) Which metal is used as sacrificial anode for protecting iron pipes?
c) Can copper displace zinc from zinc sulphate solution? Why?

15. a) What is rust? Write its chemical formula.
    b) Explain the term "anodising".
    c) Why is tin-plating not used on iron cans used for food storage?

16. In Hall-Héroult cell for extraction of aluminium
    a) Name the electrolyte used.
    b) Write the reaction at cathode and anode.
    c) Why is cryolite added to alumina?

17. In froth flotation process
    a) Name the ore concentrated by this method.
    b) Name the collectors and frothers used.
    c) Why does the ore particle become hydrophobic?

[Question 18 has choice. It carries 4 scores.] $(1 \times 4 = 4)$

18. (A) Answer any FOUR:
    a) Write the electronic configuration of Cu^+ (Z=29). Give reason.
    b) 8.4 L of a gas at STP weighs 14 g. Find its molecular mass.
    c) Why is carbon monoxide used as reducing agent in blast furnace?
    d) What is slag? How is it formed in blast furnace?
    e) Give two uses of stainless steel. f) Why is aluminium used to make overhead electric cables?

OR

    (B) A fixed volume of a gas is heated from 300 K to 600 K at constant pressure.
    a) What happens to its volume? Calculate the factor by which it increases.
    b) Name the gas law applicable.
    c) The same gas completely burns in 11.2 L of oxygen at STP to produce carbon dioxide and water vapour only.
    (i) Write the balanced equation.
    (ii) Identify the gas and name the law used.