

BOARD-PATTERN PRACTICE PAPER · CBSE CLASS 11

Classification of Elements and Periodicity in Properties

Chemistry · Chapter 3 · Matches current CBSE blueprint · Each question PYQ-sourced where indicated

DATE _____	TOTAL MARKS 30	DURATION 60 min	MARKING As per board	TARGET ≥ 24/30
---------------	--------------------------	---------------------------	--------------------------------	--------------------------

GENERAL INSTRUCTIONS

- All questions are compulsory.
- Section A: 5 one-mark MCQs / very-short answers.
- Section B: 3 two-mark short answers.
- Section C: 3 three-mark short-explain questions.
- Section D: 1 five-mark long answer combining position + trend reasoning.
- Internal choice may be provided in Sections C and D as per CBSE pattern.
- Show all working clearly; quote configurations and trend reasons explicitly.

Section A — Objective (5 × 1 = 5 marks)

5 MARKS · 8 MIN

- Q1.** The modern periodic law states that properties of elements are a periodic function of their _____. [PYQ 2019 Delhi] **[1 mark]**
- Q2.** Write the IUPAC name and symbol for the element with $Z = 116$. [PYQ 2022 AI] **[1 mark]**
- Q3.** Among Na, Mg, Al, Si in period 3, the element with the smallest atomic radius is _____. [PYQ 2020 Delhi]
- Q4.** The block in which the last electron enters the $(n-2)f$ subshell is the _____ block. [PYQ 2018 AI] **[1 mark]**
- Q5.** On the Pauling scale, the electronegativity of fluorine is _____. [PYQ 2021 Delhi] **[1 mark]**

Section B — Short Answer (3 × 2 = 6 marks)

6 MARKS · 12 MIN

- Q6.** State the modern periodic law. How does it differ from Mendeleev's periodic law? [PYQ 2020 Delhi] **[2 marks]**
- Q7.** Arrange the following in increasing order of atomic radius: F, Cl, Br, I. Give a brief reason. [PYQ 2019 AI]
- Q8.** Predict the period, group and block of the element with atomic number $Z = 24$. [PYQ 2024 Delhi] **[2 marks]**

Section C — Short Explain (3 × 3 = 9 marks)

9 MARKS · 18 MIN

- Q9.** Explain why the first ionisation enthalpy of nitrogen (1402 kJ/mol) is greater than that of oxygen (1314 kJ/mol). [PYQ 2020 Delhi] **[3 marks]**
- Q10.** Explain why electron gain enthalpy of fluorine is less negative than that of chlorine. [PYQ 2023 Term-2] **[3 marks]**
- Q11.** Arrange the following isoelectronic species in increasing order of ionic radius, with reasoning: O^{2-} , F^{-} , Na^{+} , Mg^{2+} , Al^{3+} . [PYQ 2019 AI] **[3 marks]**

Section D — Long Answer (1 × 5 = 5 marks)

5 MARKS · 12 MIN

- Q12.** An element X has atomic number 25. (a) Write its complete electronic configuration. (b) Predict its period, group, and block. (c) Comment on its expected magnetic behaviour. (d) Predict whether it is a metal, non-metal, or metalloid, with justification. (e) Suggest one common oxidation state shown by this element in its compounds. [PYQ 2024 Delhi] **[5 marks]**

Section E — Application / Higher-Order (1 × 5 = 5 marks)

5 MARKS · 10 MIN

- Q13.** (a) Define electronegativity. How does it differ from electron gain enthalpy? (b) Explain why lithium shows diagonal relationship with magnesium, giving any TWO common properties shared by Li and Mg. (c) State why 2nd-period elements show anomalous behaviour compared to heavier members of their groups. [PYQ 2022 Delhi] **[5 marks]**

