BOARD-PATTERN PRACTICE PAPER · CBSE CLASS 11

Structure of Atom

Chemistry · Chapter 2 · Matches current CBSE blueprint · Each question PYQ-sourced where indicated

DATE	TOTAL MARKS	DURATION	MARKING	TARGET
_____	30	75 min	As per board	⩾ 24/30

GENERAL INSTRUCTIONS

1. All questions are compulsory.
2. Section A: 5 MCQ/Very Short questions of 1 mark each.
3. Section B: 3 Short Answer questions of 2 marks each.
4. Section C: 3 Long Answer questions of 3 marks each.
5. Section D: 2 Case-based / Long Answer of 5 marks each.
6. Use of calculator is NOT permitted. Constants: h = 6.626e-34 J s, c = 3e8 m/s, R_H = 1.097e7 m^-1, m_e = 9.11e-31 kg, e = 1.6e-19 C.

Section A — MCQ / Very Short (1 mark each)

5 MARKS · 8 MIN

Q1. Who discovered the neutron? [PYQ 2018 Delhi] **[1 mark]**

Q2. Write the value of the Bohr radius for the first orbit of H atom. [PYQ 2019 Delhi] **[1 mark]**

Q3. State the value of the principal quantum number for the M shell. [PYQ 2020 AI] **[1 mark]**

Q4. Define the term 'isotones' with one example. [PYQ 2021 Delhi] **[1 mark]**

Q5. Write the maximum number of electrons that can be accommodated in the L shell. [PYQ 2022 AI] **[1 mark]**

Section B — Short Answer (2 marks each)

6 MARKS · 15 MIN

Q6. Write the four quantum numbers for the LAST electron in the ground-state configuration of chlorine (Z=17). [PYQ 2019 Delhi] **[2 marks]**

Q7. Calculate the de Broglie wavelength of an electron moving with velocity 1.0 x 10^6 m/s. [PYQ 2020 AI] **[2 marks]**

Q8. Differentiate between an ORBIT and an ORBITAL (any 4 differences). [PYQ 2022 Delhi] **[2 marks]**

Section C — Long Answer (3 marks each)

9 MARKS · 22 MIN

Q9. State the three postulates of Bohr's model of the hydrogen atom. [PYQ 2018 Delhi] **[3 marks]**

Q10. Calculate the wavelength of the first line of the Balmer series in the hydrogen spectrum. (R_H = 1.097 x 10^7 m^-1). [PYQ 2019 Delhi] **[3 marks]**

Q11. State Heisenberg's uncertainty principle. Explain why it is not significant for macroscopic objects. [PYQ 2020 Delhi] **[3 marks]**

Section D — Case-based / Long Answer (5 marks each)

10 MARKS · 30 MIN

Q12. (a) Write the electronic configurations of Cr (Z=24) and Cu (Z=29). (b) Justify why these configurations differ from the naive Aufbau prediction. (c) State Hund's rule of maximum multiplicity. [PYQ 2022 Delhi] **[5 marks]**

Q13. (a) State the photoelectric effect. (b) Write Einstein's photoelectric equation. (c) The work function of a metal is 3.2 x 10^-19 J. Calculate (i) the threshold frequency, (ii) the maximum KE of the ejected electron if light of frequency 8 x 10^14 Hz is incident on the metal. [PYQ 2018 AI] **[5 marks]**

Marking scheme & model answers — see companion Answer Key PDF · all PYQs traceable to actual CBSE papers · readyforboards.com · +91 70330 05444