

CLASS 9

SCIENCE

EXTRA QUESTIONS

Class 9 Science Chapter 8 Journey Inside the Atom – Extra Questions with Answers

Extra practice questions for Class 9 Science Chapter 8 (Journey Inside the Atom), beyond the textbook. These Class 9 Science Chapter 8 important questions are handy for last-minute exam practice.

Contents

Very Short Answer Questions (1 mark)

Short Answer Questions (2–3 marks)

Higher-Order Thinking / Application Questions

Extra practice questions for Class 9 Science Chapter 8 (Journey Inside the Atom), beyond the textbook. These Class 9 Science Chapter 8 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Name the three subatomic particles of an atom.

Ans: Protons, neutrons, electrons.

Q2. Whose model of the atom is called the “plum pudding model”?

Ans: J. J. Thomson.

Q3. What is the maximum number of electrons the K-shell can hold?

Ans: 2.

Q4. Define atomic number.

Ans: The number of protons in the nucleus of an atom.

Q5. Give an example of a pair of isotopes.

Ans: Carbon-12 and Carbon-14 (any correct isotope pair is acceptable).

Short Answer Questions (2–3 marks)

Q6. What problem in Rutherford’s model did Bohr’s model solve, and how?

Ans: Rutherford’s model could not explain why orbiting electrons wouldn’t lose energy and spiral into the nucleus. Bohr proposed that electrons move in specific, fixed energy levels (shells) without radiating energy while in these orbits, resolving this stability issue.

Q7. Write the electron distribution for an atom with atomic number 17 (chlorine), and state its valency.

Ans: Electron distribution: K=2, L=8, M=7 (2, 8, 7). Since the outermost shell has 7 electrons (needs 1 more to complete 8), its valency is 1.

Q8. Explain why isotopes of an element have the same chemical properties but can have different physical properties.

Ans: Isotopes have the same number of protons and electrons (same atomic number), so their chemical behaviour, which depends on electron arrangement, is the same. However, they differ in neutron number and therefore mass, which can affect physical properties like density or radioactivity.

Higher-Order Thinking / Application Questions

Q9. An atom has atomic number 12 and mass number 24. Determine the number of protons, electrons, and neutrons, and write its electron distribution across shells.

Ans: Protons = atomic number = 12; electrons (neutral atom) = 12; neutrons = mass number – atomic number = $24 - 12 = 12$. Electron distribution: K=2, L=8, M=2 (2, 8, 2).

Q10. Two atoms, X and Y, have the same mass number but different atomic numbers. Are they isotopes or isobars? Explain your reasoning and describe one difference you would expect between them.

Ans: They are isobars, since isobars are defined as atoms of different elements sharing the same mass number, while isotopes are atoms of the same element with different mass numbers. Since X and Y have different atomic numbers, they are different elements entirely, with different numbers of protons and

electrons, and therefore different chemical properties — unlike isotopes, which share chemical properties.

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#)

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