

APOLLO

The nuclear atom

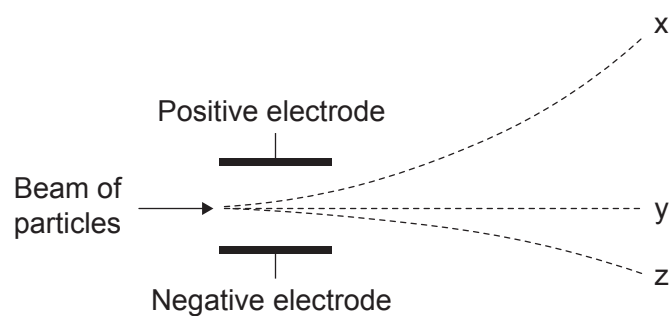
HL

Chemistry

First assessment 2025

5 questions | questions

1. The diagram below shows the behaviour of protons, neutrons and electrons in an electric field.

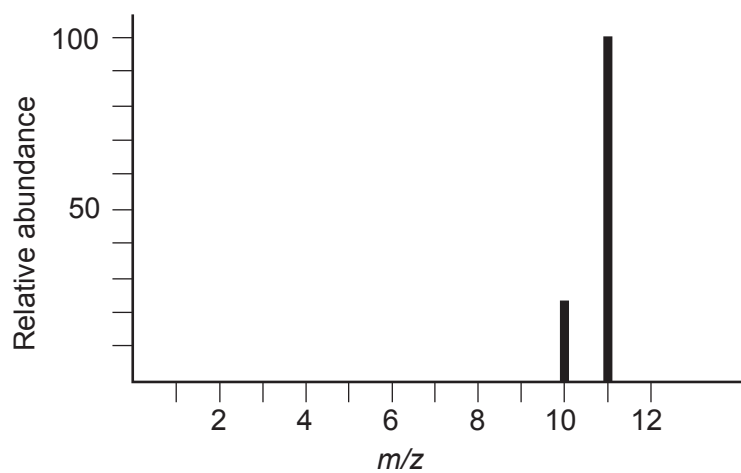


What is the correct identity of each particle?

	Protons	Electrons	Neutrons
A.	y	z	x
B.	x	y	z
C.	z	x	y
D.	x	z	y

2. Which property is the same for water containing tritium (^3H) and water containing hydrogen (^1H)?
- A. Density
 - B. Dipole moment of a molecule
 - C. Boiling point
 - D. Relative molecular mass

4. What is the relative atomic mass of an element with the following mass spectrum?

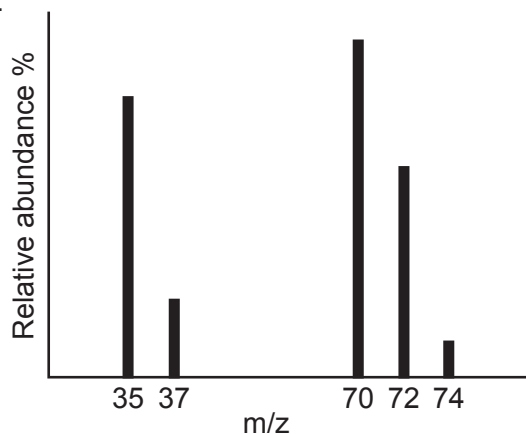


- A. 10.2
- B. 10.5
- C. 10.8
- D. 11.0

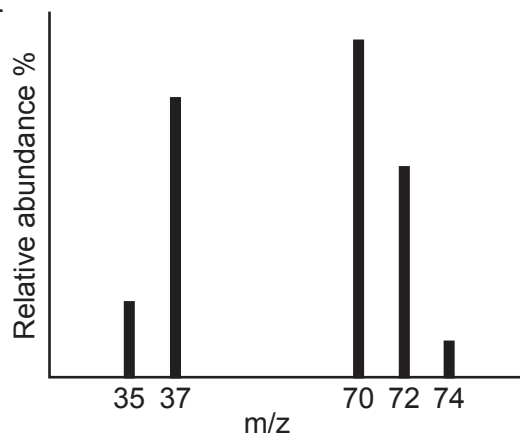
2. Chlorine is a diatomic molecule that contains 75% of ^{35}Cl and 25% of ^{37}Cl .

Which graph shows the full mass spectrum of chlorine?

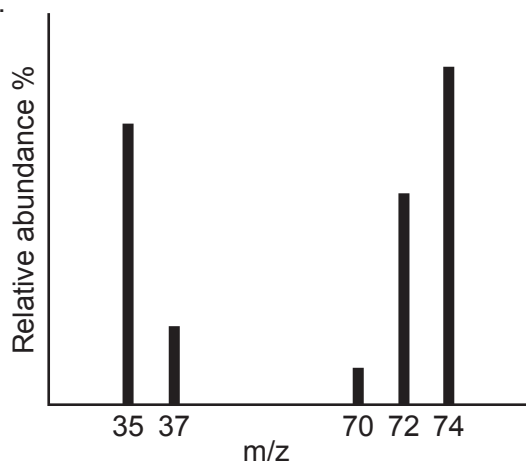
A.



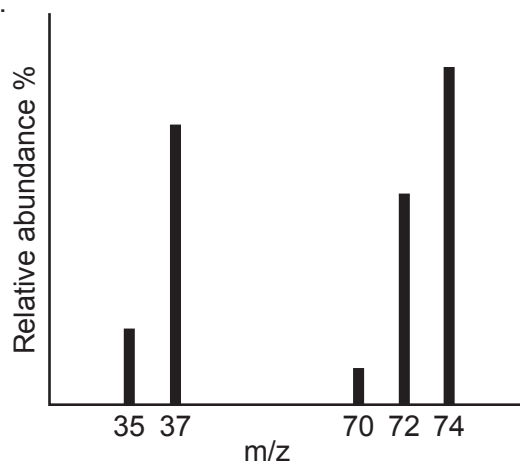
B.



C.



D.



2. Ice containing only the isotope ^2H sinks and does not melt when dropped into ordinary distilled water maintained at 3°C .

Which statement is correct?

- A. The isotope ^2H has a high natural abundance.
- B. $^2\text{H}_2\text{O}(\text{s})$ has a higher melting point than normal ice.
- C. $^2\text{H}_2\text{O}(\text{s})$ has a lower density than normal ice-cold water.
- D. $^2\text{H}_2\text{O}$ has different chemical properties from normal water.