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CAIE A LEVEL Chemistry Topic Questions / 9701

1.1.2-Behaviour-of-Proton-Neutron-Electron-Beams-in-Electric-Field-Set-1-qp

Total Questions: 4

Note:

- For questions with answer choices as statements 1, 2 and 3, follow these instructions for selecting options A/B/C/D:
- A= 1, 2 and 3 are correct
- B=1 and 2 only are correct
- C=2 and 3 only are correct
- D=1 only is correct

Questions

Question 1:

Beams of charged particles are deflected by an electric field. In identical conditions the angle of deflection of a particle is proportional to its charge/mass ratio.

In an experiment, protons are deflected by an angle of $+15^\circ$. In another experiment under identical conditions, particle Y is deflected by an angle of -5° .

What could be the composition of particle Y?

	protons	neutrons	electrons
1	1	2	2
2	3	3	5
3	4	5	1

Question 2:

Beams of charged particles are deflected by an electrical field. The angle of deflection of a particle is proportional to its charge/mass ratio.

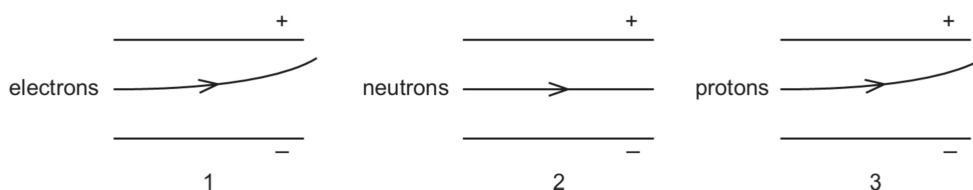
In an experiment protons are deflected by an angle of $+15^\circ$. In another experiment under identical conditions $^2\text{H}^+$ ions are deflected by an angle of Y° .

What is the value of Y?

- A -30.0 B -7.5 C $+7.5$ D $+30.0$

Question 3:

The diagrams show the possible paths of subatomic particles moving in an electric field in a vacuum.



Which diagrams are correct?

- A 1 and 2 only
B 1 and 3 only
C 2 and 3 only
D 1, 2 and 3

Questions (Continued)

Question 4:

Neutrons are passed through an electric field. The mass of one neutron relative to $\frac{1}{12}$ the mass of a ^{12}C atom and any deflection in the electric field is recorded.

Which row is correct?

	mass of neutron	behaviour of beam of neutrons in an electric field
A	0	deflected
B	1	deflected
C	0	not deflected
D	1	not deflected