

- 2 The Brownian motion of smoke particles in air may be observed using the apparatus shown in Fig. 2.1.

For
Examiner's
Use

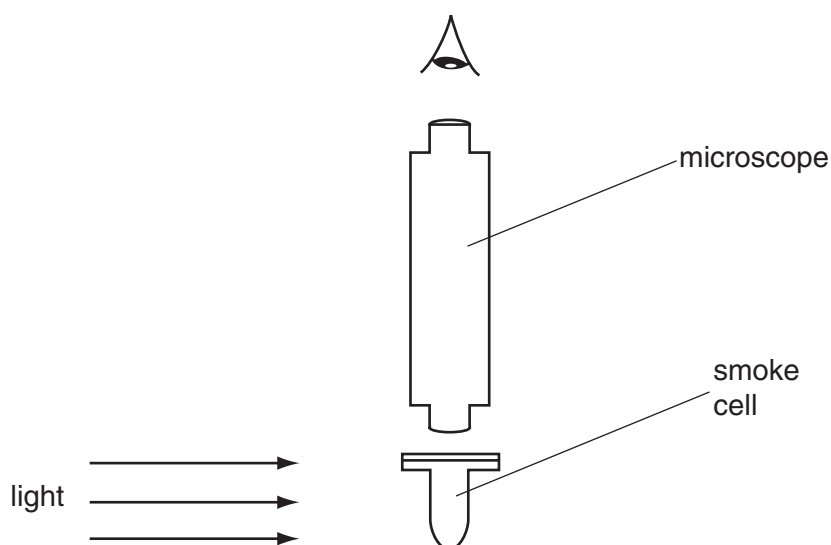


Fig. 2.1

- (a) Describe what is seen when viewing a smoke particle through the microscope.

.....

[2]

- (b) Suggest and explain what difference, if any, would be observed in the movement of smoke particles when larger smoke particles than those observed in (a) are viewed through the microscope.

.....

[2]

- 8 Fig. 8.1 shows the position of Neptunium-231 ($^{231}_{93}\text{Np}$) on a diagram in which nucleon number (mass number) A is plotted against proton number (atomic number) Z .

For
Examiner's
Use

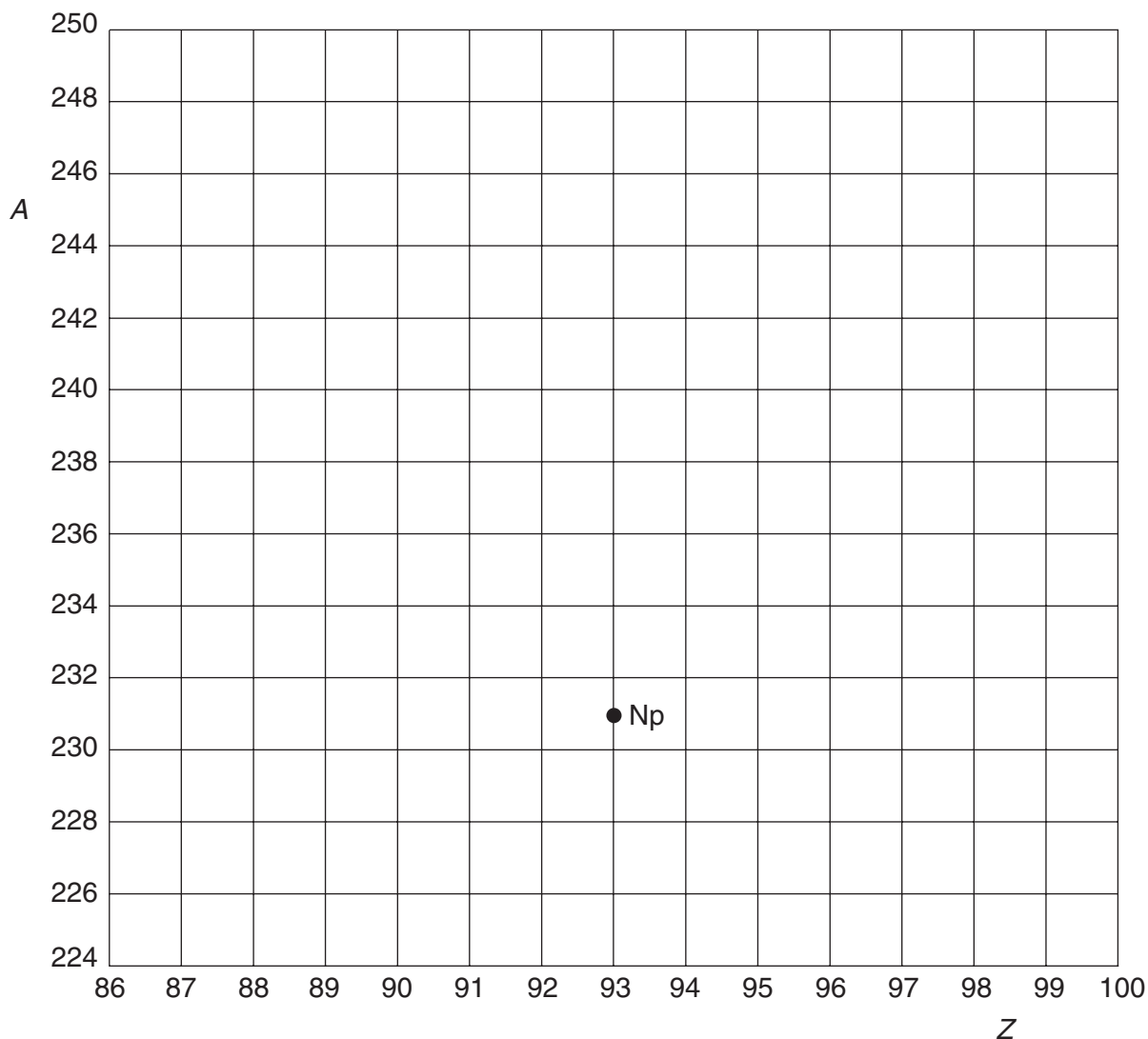


Fig. 8.1

- (a) Neptunium-231 decays by the emission of an α -particle to form protactinium. On Fig. 8.1, mark with the symbol Pa the position of the isotope of protactinium produced in this decay. [1]
- (b) Plutonium-243 ($^{243}_{94}\text{Pu}$) decays by the emission of a β -particle (an electron). On Fig. 8.1, show this decay by labelling the position of Plutonium-243 as Pu and the position of the daughter product as D. [2]

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