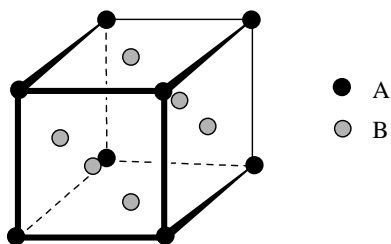**Marks**
3

- An alloy is formed by combining elements A and B. The alloy has a face-centred cubic structure, with atoms of A at the corners and atoms of B in the faces. What is the formula of the alloy? Explain your reasoning.

The atoms on the corners are shared between 8 cells: each contributes $^1/_8$.

The atoms on the faces are shared between 2 cells: each contributes $^1/_2$.

Thus, there are $8 \times {}^1/_8$ A atoms = 1 A atoms and $6 \times {}^1/_2$ B atoms = 3 B atoms.

Overall, A : B = 1 : 3 so the formula is AB_3.

● A
○ B

Answer: **AB_3**