

1 What is the electronic configuration for the particle ${}_{13}^{27}\text{Al}^+$?

- A $1s^2 2s^2 2p^6 3s^1 3p^1$
B $1s^2 2s^2 2p^6 3s^2$
C $1s^2 2s^2 2p^6 3s^2 3p^2$
D $1s^2 2s^2 2p^6 3s^2 3p^6 3d^7 4s^1$

1 What is the electrons in boxes notation for the Fe^{3+} ion?

- | | 3d | 4s | | | | | | |
|----|---|----|---|---|---|---|--|----|
| A | [Ar] <table border="1" style="display: inline-table; text-align: center; width: 150px;"><tr><td>↑↓</td><td>↑</td><td></td><td></td><td></td></tr></table> | ↑↓ | ↑ | | | | <table border="1" style="display: inline-table; text-align: center; width: 40px;"><tr><td>↑↓</td></tr></table> | ↑↓ |
| ↑↓ | ↑ | | | | | | | |
| ↑↓ | | | | | | | | |
| B | [Ar] <table border="1" style="display: inline-table; text-align: center; width: 150px;"><tr><td>↑</td><td>↑</td><td>↑</td><td></td><td></td></tr></table> | ↑ | ↑ | ↑ | | | <table border="1" style="display: inline-table; text-align: center; width: 40px;"><tr><td>↑↓</td></tr></table> | ↑↓ |
| ↑ | ↑ | ↑ | | | | | | |
| ↑↓ | | | | | | | | |
| C | [Ar] <table border="1" style="display: inline-table; text-align: center; width: 150px;"><tr><td>↑↓</td><td>↑</td><td>↑</td><td>↑</td><td></td></tr></table> | ↑↓ | ↑ | ↑ | ↑ | | <table border="1" style="display: inline-table; text-align: center; width: 40px;"><tr><td></td></tr></table> | |
| ↑↓ | ↑ | ↑ | ↑ | | | | | |
| | | | | | | | | |
| D | [Ar] <table border="1" style="display: inline-table; text-align: center; width: 150px;"><tr><td>↑</td><td>↑</td><td>↑</td><td>↑</td><td>↑</td></tr></table> | ↑ | ↑ | ↑ | ↑ | ↑ | <table border="1" style="display: inline-table; text-align: center; width: 40px;"><tr><td></td></tr></table> | |
| ↑ | ↑ | ↑ | ↑ | ↑ | | | | |
| | | | | | | | | |

4 Which statement is correct?

- A The relative atomic mass of a ${}^{35}\text{Cl}$ atom is 35.5.
B The relative molecular mass of O_2 is 16.0.
C The relative formula mass of CaCO_3 is 100.1.
D The relative isotopic mass of a ${}^{24}\text{Mg}$ atom is 24.3.