

| | Marks |
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| <ul style="list-style-type: none">Name the element described by the following configuration. | 1 |
| <p>[Kr] $5s^2 4d^{10}$</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">Cadmium</div> | |
| <ul style="list-style-type: none">Write out the valence electron configuration of the following anions and in each case explain why the anion is less stable than the separated atom and electron. | 4 |
| <p>Ne⁻</p> <p>$1s^2 2s^2 2p^6 3s^1$</p> <p>Ne has a noble gas configuration. The extra electron needs to go into the 3s orbital which is in the next shell: it is high in energy as the electron is far from the nucleus.</p> | |
| <p>N⁻</p> <p>$1s^2 2s^2 2p^4$</p> <p>N has all 3 electrons in different <i>p</i> orbitals with parallel spins. Adding an extra electrons forces one of these electrons to become paired which is a higher energy situation.</p> | |

THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.