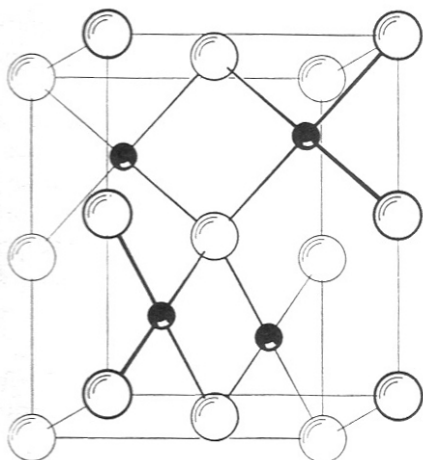
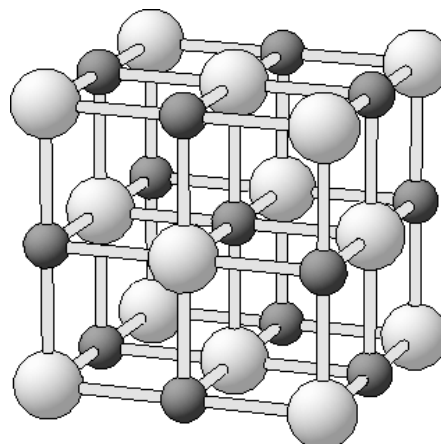


Marks
8

- PdO is used as a hydrogenation catalyst and it crystallizes with the tetragonal structure shown below. NiO has a variety of uses and crystallizes with the rocksalt structure. The large spheres represent the oxygen atoms and the smaller spheres represent palladium or nickel atoms.



palladium(II) oxide, PdO



nickel(II) oxide, NiO

Show the structure on the left is consistent with the formula PdO.

What is the coordination number about each metal atom?

Pd:	Ni:
-----	-----

The radius of the Pd²⁺ ion is 86 pm, that of the Ni²⁺ ion is 69 pm. Give a reason why the larger ion has a smaller coordination number.

Does either structure contain a close-packed arrangement of O²⁻ ions?

PdO: YES / NO	NiO: YES / NO
---------------	---------------

If YES, indicate the layers on the unit cell(s) above.