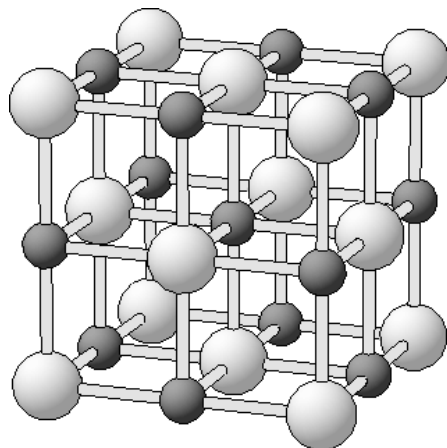


- Iron forms three common oxides, FeO, Fe₃O₄ and Fe₂O₃. The unit cell for one of these oxides is shown below.

Marks
8



Explain which oxide the structure represents and describe the nature of the packing of the ions and their coordination numbers.

The mineral magnetite, Fe₃O₄, is found in the beaks of homing pigeons. It contains a mixture of Fe²⁺ and Fe³⁺ ions. What is the ratio of Fe²⁺ to Fe³⁺ in Fe₃O₄?

How many unpaired electrons are there in an Fe²⁺ ion and in an Fe³⁺ ion? Explain your answer using the box notation.

Fe²⁺:

Fe³⁺: