

6 Transition metals and their complexes have characteristic properties.

6 (a) Give the electron configuration of the Zn^{2+} ion.
Use your answer to explain why the Zn^{2+} ion is **not** classified as a transition metal ion.

Electron configuration

Explanation

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(2 marks)

6 (b) In terms of bonding, explain the meaning of the term *complex*.

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(2 marks)

6 (c) Identify **one** species from the following list that does **not** act as a ligand. Explain your answer.

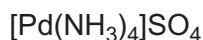


Not a ligand

Explanation

(2 marks)

6 (d) The element palladium is in the d block of the Periodic Table. Consider the following palladium compound which contains the sulfate ion.



6 (d) (i) Give the oxidation state of palladium in this compound.

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(1 mark)

6 (d) (ii) Give the names of two possible shapes for the complex palladium ion in this compound.

Shape 1

Shape 2

(2 marks)

