

Transition Metals Simple Questions - Answers

1. What is meant by the term *transition metal*? State **at least two** general properties of transition metals.

Incomplete d-orbitals. Found in groups 3 – 12 of Periodic Table

Any two from:

- Form coloured compounds
- Have varying oxidation states (numbers)
- Form complexes with ligands
- Have catalytic functions

2. Outline the difference(s) between Unidentate, Bidentate and Multidentate ligands. From the refcodes below, outline the ligand type for each:

AWEGOZ BEBDAO AENIN AGOJUB DUGMAT

Unidentate – attached by 1 bond AWEGOZ BEBDAO AENIN

Bidentate – attached by 2 bonds AENIN DUGMAT

Multidentate – attached by many bonds AGOJUB

3. From the transition metal complexes below, outline the complexes which have each geometry. If you can, outline (rough) bond angles for each geometry.

AWEGOZ QUXWAI KUPHEI XETXUP NEZKAG

Geometry	Refcode(s)	Bond Angle(s)/°
Linear	<u>AWEGOZ</u>	<u>180</u>
Tetrahedral	<u>NEZKAG</u>	<u>109.5</u>
Octahedral	<u>QUXWAI KUPHEI</u>	<u>90</u>
Other	<u>XETXUP</u>	<u>90 (square planar)</u>