

1. For what laboratory and in what year was this article published?
2. In one sentence summarize the main subject of the article.
3. What is a transition element?
4. What are the three main ways d-block elements differ from main group elements?
5. What four transition elements have been known since 0 BCE?
6. What elements were discovered in the 1700s?
7. What was the last d-block element to be known?
8. Who established coordination chemistry?
9. What is a coordination number?
10. What are the three most common shapes?
11. What is the most important tool for determination of structures?
12. A new major branch of chemistry is the study of _____
13. What are the main "evolutionary" developments since Werner?
14. What are the main "revolutionary" developments since Werner?
15. Are there likely to be new developments in transition metal chemistry in this century?

Answers

1. For what laboratory and in what year was this article published?
Texas A&M University, USA Year: 2000
2. In one sentence summarize the main subject of the article.
The present state of transition metal chemistry - its evolutionary and revolutionary developments.
3. What is a transition element?
Element with partially filled d or f shells in any of their commonly occurring oxidation states.
4. What are the three main ways d-block elements differ from main group elements?
Transition elements form compounds in two or more oxidation states and redox chemistry, including electrochemistry, is very important.

The majority of transition element compounds have visible spectra and these spectra give a lot of information about the electronic structure of these compounds.

Many of these compounds have unpaired electrons and interesting magnetic properties.
5. What four transition elements have been known since 0 BCE? iron, copper, silver, gold
6. What elements were discovered in the 1700s? cobalt, nickel, manganese
7. What was the last d-block element to be known? Technetium (1939)
8. Who established coordination chemistry? Alfred Werner (Switzerland)
9. What is a coordination number? The number of atoms (or radicals and other molecules capable of independent existence) grouped around one central atom of a molecular compound.
10. What are the three most common shapes? octahedral, tetrahedral and square planar.
11. What is the most important tool for determination of structures? x-ray crystallography
12. A new major branch of chemistry is the study of _____ Metal carbonyls
13. What are the main "evolutionary" developments since Werner? Structural characterization, thermodynamics and kinetics, metal carbonyls, electronic structures
14. What are the main "revolutionary" developments since Werner? Biometallic chemistry, organo-transition-metal chemistry, catalytic activity of transition metals, stereochemical nonrigidity or fluxionality, metal-metal bonding, solid state chemistry, supramolecular chemistry
15. Are there likely to be new developments in transition metal chemistry in this century?