

Metallic Bonds Quiz Answer Key PDF

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What factors affect the strength of metallic bonds? (Select all that apply)

- A. Number of delocalized electrons ✓**
- C. Atomic mass
- D. Charge of metal ions ✓**
- C. Size of metal ions ✓**

Which of the following are properties of metals due to metallic bonding? (Select all that apply)

- A. High electrical conductivity ✓**
- C. High thermal conductivity ✓**
- D. High transparency
- C. Malleability ✓**

Which model best describes the behavior of electrons in metallic bonds?

- A. Electron cloud model
- C. Bohr model
- D. Quantum mechanical model
- C. Electron sea model ✓**

What type of bond involves the communal sharing of electrons among a lattice of metal atoms?

- A. Ionic bond
- C. Covalent bond
- D. Hydrogen bond
- C. Metallic bond ✓**

Which property allows metals to be drawn into wires?

- A. Brittleness
- C. Malleability
- D. Hardness
- C. Ductility ✓**

What property of metals is primarily due to the presence of free electrons?

- A. Brittleness
- C. Transparency
- D. Insulation
- C. Luster ✓**

Which factor does NOT significantly influence the strength of metallic bonds?

- A. Number of delocalized electrons
- C. Charge of metal ions
- D. Size of metal ions
- C. Color of the metal ✓**

Which of the following metals is known for its excellent electrical conductivity due to metallic bonding?

- A. Iron
- C. Lead
- D. Tin
- C. Copper ✓**

What is the primary characteristic of a metallic bond?

- A. Sharing of electron pairs
- C. D) Delocalization of electrons ✓**
- D. Formation of dipoles
- C. Transfer of electrons

Which metals are commonly used in applications requiring high conductivity? (Select all that apply)

- A. Gold ✓**
- C. Silver ✓**

D. Aluminum ✓

C. Mercury

In which of the following applications are metallic bonds crucial? (Select all that apply)

A. Electrical wiring ✓

C. Jewelry making ✓

D. Insulation materials

C. Construction materials ✓

Explain how the electron sea model accounts for the conductivity of metals.

The conductivity of metals is accounted for by the electron sea model, which posits that metal atoms release some of their electrons to form a 'sea' of delocalized electrons that can move freely, facilitating the flow of electric current.

Which of the following are characteristics of metallic bonds? (Select all that apply)

A. Formation of a rigid lattice ✓

C. High melting and boiling points ✓

D. Low density

C. Reflect reflective surface ✓

What is the arrangement of atoms in a metal typically called?

A. Amorphous structure

C. Random array

D. Molecular network

C. Crystal lattice ✓

Which of the following statements about metallic bonds are true? (Select all that apply)

A. They involve the transfer of electrons.

C. They make metals brittle.

D. They allow metals to conduct electricity. ✓

C. They provide metals with a shiny appearance. ✓