1. A metal transfers electrons to a nonmetal. What bond forms?

   ☐ metallic

   ☐ covalent

   ☐ ionic

2. On a potential-energy versus distance curve, the bond length is at the...

   ☐ highest point

   ☐ lowest point of the well

   ☐ far right where energy is zero

3. An ionic solid conducts electricity...

   ☐ always, even as a solid

   ☐ only when molten or dissolved

   ☐ never, under any condition

4. What carries electric current through a solid metal?

   ☐ moving positive ions

   ☐ delocalized electrons

   ☐ neutrons

5. What is the first step in drawing a Lewis diagram?

   ☐ count the total valence electrons

   ☐ add double bonds everywhere

   ☐ guess the shape

6. An oxygen atom (6 valence) has 4 lone electrons and 4 bonding electrons. Its formal charge?

   _____

7. Lone pairs must be counted as electron groups when predicting shape.

   ☐ True ☐ False

8. A lattice of metal cations in a shared sea of electrons is a _____ bond.

   _____

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☐ True ☐ False

10. A higher lattice energy generally means a lower melting point.

    ☐ True ☐ False

1. **ionic**

   Electron transfer forms cations and anions. Their electrostatic attraction is the ionic bond.

2. **lowest point of the well**

   The minimum is the stable separation – the bond length.

3. **only when molten or dissolved**

   Ions must be free to move – that happens when melted or dissolved.

4. **delocalized electrons**

   Free (delocalized) electrons move and carry the charge.

5. **count the total valence electrons**

   You must know the total electron count before placing anything.

6. **0**

   $FC = 6 - 4 - \frac{1}{2}(4) = 6 - 4 - 2 = 0$.

7. **True**

   Lone pairs occupy space and bend the geometry.

8. **metallic**

   This "sea of electrons" model describes a metallic bond.

9. **False**

   False. The well depth equals the energy needed to break the bond, so a deeper well means a stronger bond.

10. **False**

    False. More lattice energy holds the ions together more strongly, so more heat is needed to break the lattice: a higher melting point.

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