



Answer the multi-choice questions below then check your answers.

1. Which of the following best describes an ionic bond?

- A) Sharing of electron pairs between atoms
- B) Transfer of electrons from one atom to another
- C) Overlapping of atomic orbitals
- D) Attraction between nuclei and shared electrons

2. What is the structure of sodium chloride (NaCl)?

- A) Simple molecular
- B) Covalent network
- C) Giant ionic lattice
- D) Metallic lattice

3. Which property is common to most ionic compounds?

- A) Low melting points
- B) Electrical conductivity in solid state
- C) Solubility in non-polar solvents
- D) High melting and boiling points

4. What is an electrolyte?

A) A substance that forms covalent bonds in solution

B) A substance that produces ions and conducts electricity in solution

C) A non-conducting solid

D) A substance that only conducts electricity in solid form

5. Why are ionic compounds typically brittle?

A) They have strong metallic bonds

B) They have weak covalent bonds

C) Their ions are arranged in rigid, fixed positions that shatter under stress

D) Their ions are free to move in the lattice

6. Which of the following statements is true about the melting points of ionic compounds?

A) Ionic compounds generally have low melting points due to weak forces between ions.

B) Ionic compounds generally have high melting points due to strong electrostatic forces between ions.

C) Ionic compounds have variable melting points, depending on the temperature.

D) Ionic compounds do not melt.

7. What happens to ionic compounds when they dissolve in water?

- A) They form covalent bonds      B) They remain intact as solid crystals  
C) They dissociate into free ions      D) They evaporate

8. Which ions are involved in the migration observed during the electrolysis of copper chromate solution?

- A)  $\text{Cu}^{2+}$  and  $\text{OH}^-$       B)  $\text{Cu}^{2+}$  and  $\text{CrO}_4^{2-}$   
C)  $\text{K}^+$  and  $\text{Cl}^-$       D)  $\text{H}^+$  and  $\text{OH}^-$

9. What colour change is observed at the anode during the electrolysis of potassium permanganate solution?

- A) Blue to green      B) Purple to brown/black  
C) Red to yellow      D) Colourless to pink

10. Which of the following best describes ion-dipole forces?

- A) Forces between two non-polar molecules  
B) Forces between an ion and a dipole in a polar molecule  
C) Forces between two ions  
D) Forces within a molecule

11. Which property explains why ionic compounds conduct electricity in molten state?

- A) Presence of free electrons                      B) Presence of free-moving ions  
C) Presence of covalent bonds                      D) Presence of strong dipole interactions

12. What is the role of water in the solubility of ionic compounds?

- A) Water acts as a non-polar solvent  
B) Water stabilises ions through ion-dipole interactions  
C) Water forms covalent bonds with ions  
D) Water evaporates the ionic compound

13. Which of the following explains the high boiling point of ionic compounds?

- A) Presence of Van der Waals forces                      B) Weak electrostatic attractions  
C) Strong electrostatic attractions between ions                      D) Formation of covalent bonds

Answer: C

14. What type of ions migrate to the anode during electrolysis?

- A) Cations                      B) Anions  
C) Neutral atoms                      D) Radicals

Answer: B

15. Which of the following is a typical property of ionic compounds?

- A) High electrical conductivity in solid state      B) Solubility in organic solvents  
C) High melting and boiling points                  D) Malleability

16. What happens to the potassium ions ( $K^+$ ) during the electrolysis of potassium permanganate solution?

- A) They are reduced at the cathode                  B) They are oxidised at the anode  
C) They migrate to the anode                          D) They do not migrate

17. What is the primary interaction between water molecules and ions when an ionic compound dissolves?

- A) Covalent bonding                                      B) Hydrogen bonding  
C) Ion-dipole interactions                              D) London dispersion forces

18. Why do ionic compounds tend to be soluble in water?

- A) Water is a non-polar solvent  
B) Water molecules form strong covalent bonds with ions  
C) Water molecules form ion-dipole interactions with the ions  
D) Water evaporates the ions

19. Which of the following best explains the brittleness of ionic crystals?

A) Sliding layers of atoms

B) Repulsion between like-charged ions when the lattice is stressed

C) Presence of metallic bonds

D) Formation of covalent bonds

20. During electrolysis, which ions are reduced at the cathode?

A) Anions                  B) Cations

C) Neutral atoms    D) Radicals

Answers:

1. B      2. C      3. D      4. B      5. C      6. B

7. C      8. B      9. B      10. B      11. B      12. B

13. C      14. B      15. C      16. A      17. C      18. C

19. B      20. B