Chemical Bonding and Molecular Structure – MCQs

1. The type of bond formed between two nonmetals is:
A) Ionic bond
B) Covalent bond
C) Metallic bond
D) Hydrogen bond

2. Which of the following is a molecule with a triple covalent bond?
A) O_2
B) H_2
C) N_2
D) Cl_2

3. Which of the following compounds contains an ionic bond?
A) HCl
B) CO_2
C) NaCl
D) NH_3

4. In the formation of NaCl, sodium:
A) Gains one electron
B) Shares one electron
C) Loses one electron
D) Gains two electrons

5. A covalent bond is formed by:
A) Loss of electrons
B) Gain of electrons
C) Sharing of electrons
D) Transfer of protons

6. The number of covalent bonds in a water molecule is:
A) 1
B) 2
C) 3
D) 4

7. Which of the following is a polar covalent molecule?
A) O_2
B) H_2
C) HCl
D) Cl_2

8. What type of bond is present in a diamond?
A) Ionic
B) Covalent
C) Metallic
D) Hydrogen

9. A coordinate bond is formed when:
A) Electrons are transferred
B) Electrons are shared equally
C) One atom donates both electrons
D) Atoms lose electrons

10. Which of the following species has a linear shape?
A) CH_4
B) NH_3
C) CO_2
D) H_2O

11. The bond angle in methane (CH_4) is:
A) 90°
B) 104.5°
C) 120°
D) 109.5°

12. Which type of bond is the strongest?
A) Ionic
B) Covalent
C) Hydrogen
D) Van der Waals

13. Which of the following has a tetrahedral geometry?
A) CO_2
B) CH_4
C) H_2O
D) BF_3

14. The VSEPR theory helps to predict:
A) Electronegativity
B) Atomic number
C) Molecular shape
D) Atomic mass

15. Which molecule contains a dative (coordinate) bond?
A) NH_3
B) H_2O
C) NH_4^+
D) O_2

16. Which of the following is a non-polar molecule?
A) HCl
B) NH_3
C) CO_2
D) H_2O

17. In metallic bonding, electrons are:
A) Shared between two atoms
B) Localized between ions

C) Delocalized over a lattice
D) Transferred to nonmetals

18. Hydrogen bonding occurs in:
A) NaCl
B) CH_4
C) H_2O
D) CO_2

19. Which of the following molecules has a bent shape?
A) $BeCl_2$
B) CO_2
C) H_2O
D) CH_4

20. The bond in H_2 is:
A) Ionic
B) Covalent
C) Metallic
D) Coordinate

Answer Key

1. B
2. C
3. C
4. C
5. C
6. B
7. C
8. B
9. C
10. C
11. D
12. B
13. B
14. C
15. C
16. C
17. C
18. C
19. C
20. B