

REVISION PERIODIC TABLE & CHEMICAL BONDING

SEM 1 2021/2022

1. Elements are arranged in periodic table according to increasing:
 - Mass number
 - Atomic number
 - Number of neutrons
 - Number of electrons
2. The elements in Group 7 are known by what name?
 - Transition metals
 - Halogens
 - Alkali metals
 - Alkaline earth metals
3. The elements in Group 2 are known by what name?
 - Transition metals
 - Halogens
 - Alkali metals
 - Alkaline earth metals
4. The general electron configuration for atoms of all elements in Group 5 is:
 - ns^2np^6
 - ns^2np^5
 - ns^2np^4
 - ns^2np^3
5. which of the following is the general electron configuration for the outermost electrons of elements in the alkaline earth group?
 - ns^1
 - ns^2
 - ns^2np^4
 - ns^2np^5
6. Which of the following make an isoelectronic pair; Cl^- , O^{2-} , F , Ca^{2+} , Fe^{3+} ?
 - Ca^{2+} and Fe^{3+}
 - O^{2-} and F
 - Cl^- and Ca^{2+}
 - Cl^- and F
7. Which ion is isoelectronic with Ar ?
 - Fe^{2+}
 - F^-
 - Br
 - Ca^{2+}
8. Arrange the following ions in order of increasing size K^+ , P^{3-} , S^{2-} , Cl^-
 - $K^+ < Cl^- < S^{2-} < P^{3-}$
 - $K^+ < P^{3-} < S^{2-} < Cl^-$
 - $P^{3-} < S^{2-} < Cl^- < K^+$
 - $Cl^- < S^{2-} < P^{3-} < K^+$

9. Which element will have the lowest ionization energy?

- A. Li
- B. Na
- C. Be
- D. K

10. Which element will display an unusually large jump in ionization energy values between ionization energy 3, IE₃ and ionization energy 4, IE₄?

- A. Na
- B. Mg
- C. Al
- D. Si

11. Which of the following is an amphoteric oxide?

- A. Na₂O
- B. MgO
- C. Al₂O₃
- D. SO₂

12. Which one of the following compounds is most likely to be an ionic compound?

- A. KF
- B. CCl₄
- C. CS₂
- D. CO₂

13. Which pair of elements would be most likely to form an ionic compound?

- A. Cl and I
- B. Al and K
- C. Cl and Mg
- D. C and S

14. Classify the O-H bond in CH₃OH as ionic, polar covalent, or nonpolar covalent.

- A. ionic
- B. polar covalent
- C. nonpolar covalent
- D. dative

15. The electron dot formula for O₂ shows:

- A. a single covalent bond
- B. a double covalent bond
- C. ionic bond
- D. a triple covalent bond

16. Which of the following is a useful guideline for the application of formal charges? For neutral molecule:

- A. Lewis structure in which there are no formal charges is preferred.
- B. Lewis structure with large formal charge (+2, +3 and/or -2, -3) are preferred.
- C. Lewis structure is one in which positive formal charges are on the most electronegative atom in molecule.

17. Which one of the following will display as odd number in its Lewis structure?

- A. CO_2
- B. Cl_2
- C. ICl
- D. NO

18. Which one of the following compounds does not follow octet rule?

- A. NF_3
- B. CF_4
- C. SF_6
- D. HCl

19. The central atom in SF_4 has _____ bonding pair (s) and _____ lone pair (s) of electrons.

- A. 4,0
- B. 4,1
- C. 3,2
- D. 5,1

20. According to VSEPR theory, the shape of the SO_3 molecule is:

- A. Square pyramidal
- B. Tetrahedral
- C. Trigonal planar
- D. Bent

21. What is the hybridization of the central atom in ClO_3^- ?

- A. sp
- B. sp^2
- C. sp^3
- D. sp^3d

22. how many sigma and pi bonds are there in a CO_2 molecule?

- A. 2 sigma
- B. 2 sigma and 4 pi
- C. 2 sigma and 2 pi
- D. 1 sigma and 2 pi

23. What is the total number of valence electron in CCl_4 ?

- A. 24
- B. 30
- C. 32
- D. 36

24. The bond angle SCN^- are

- A. 90°
- B. 109°
- C. 120°
- D. 180°

25. Which of the following molecules does not have a dipole moment?

- A. BH_3
- B. NH_3
- C. CHCl_3
- D. NH_2Br