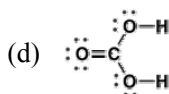
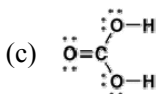
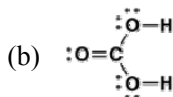
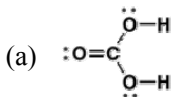
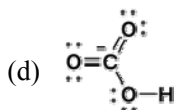
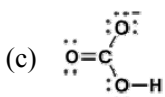
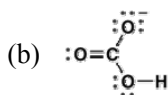
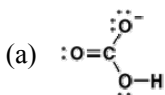


- Which is the ground-state electronic configuration of chlorine?
  - $1s^2 2s^2 2p^5$
  - $1s^2 2s^2 2p^6 3s^2 3p^4$
  - $1s^2 2s^2 2p^6 3s^2 3p^5$
  - $1s^2 2s^2 2p^8 3s^2 3p^5$
- Which is the ground-state electronic configuration of  $\text{Na}^+$ ?
  - $1s^2 2s^2 2p^8$
  - $1s^2 2s^2 2p^6 3s^1$
  - $1s^2 2s^2 2p^6 3s^2$
  - $1s^2 2s^2 2p^6$
- Which of the following atoms or ions has the electronic configuration  $1s^2 2s^2 2p^6 3s^2 3p^6$ ?
  - Ne
  - K
  - $\text{Cl}^-$
  - $\text{Mg}^{2+}$
- Which of the following elements is less electro negative than carbon?
  - Si
  - N
  - Cl
  - F
- Which of the following bonds is the most polar?
  - C-H
  - O-H
  - C-O
  - N-H
- Which is a correct Lewis structure for carbon dioxide,  $\text{CO}_2$ ?
  - $$\begin{array}{c} \ddot{\text{O}} \\ \vdots \\ \text{O}=\text{C}=\text{O} \\ \vdots \\ \ddot{\text{O}} \end{array}$$
  - $$:\text{O}=\text{C}=\text{O}:$$
  - $$:\text{O}=\overset{+}{\text{C}}=\overset{-}{\text{O}}:$$
  - $$\begin{array}{c} \ddot{\text{O}} \\ \vdots \\ \ddot{\text{O}}-\text{C}\equiv\text{O} \\ \vdots \end{array}$$

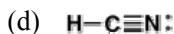
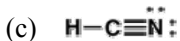
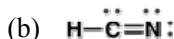
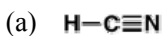
7. Which is a correct Lewis structure for carbonic acid,  $\text{H}_2\text{CO}_3$ ?



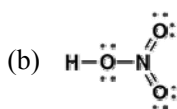
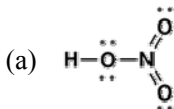
8. Which is a correct Lewis structure for hydrogen carbonate ion,  $\text{HCO}_3^-$ ?

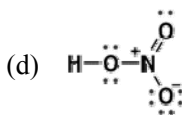
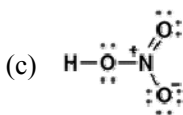


9. Which is a correct Lewis structure for hydrogen cyanide,  $\text{HCN}$ ?



10. Which is a correct Lewis structure for nitric acid,  $\text{HNO}_3$ ?



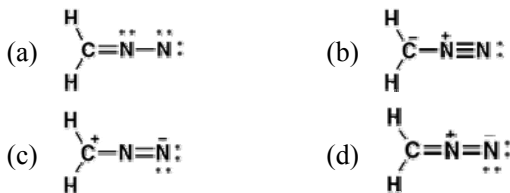


11. Which of the following does not have the ground-state configuration  $1s^2 2s^2 2p^6$  ?  
 (a) Ne      (b)  $\text{Na}^+$       (c)  $\text{Cl}^-$       (d)  $\text{F}^-$
12. Which of the following elements is the most electronegative?  
 (a) B      (b) C      (c) Cl      (d) N
13. Which of the following elements is the most electropositive?  
 (a) B      (b) C      (c) Cl      (d) N
14. Which of the following elements is the most electronegative?  
 (a) Br      (b) Cl      (c) F      (d) I
15. Which of the following elements is the most electropositive?  
 (a) Br      (b) Cl      (c) F      (d) I
16. Which of the following compounds has an ionic bond?  
 (a)  $\text{H}_2\text{O}$       (b)  $\text{NH}_4\text{Cl}$       (c)  $\text{CH}_3\text{Cl}$       (d)  $\text{CH}_3\text{Li}$
17. Which of the following molecules does not have a dipole moment?  
 (a)  $\text{CH}_3\text{Cl}$       (b)  $\text{CH}_2\text{Cl}_2$       (c)  $\text{CHCl}_3$       (d)  $\text{CCl}_4$

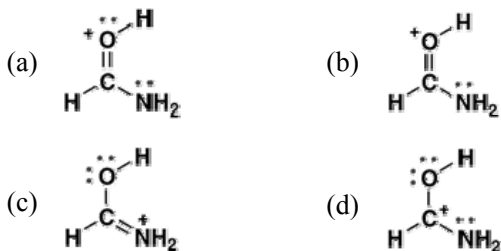
18. Which of the following contains an atom (other than hydrogen) which lacks an octet of valence electrons?

- (a)  $\text{NH}_3$       (b)  $\text{H}_3\text{O}^+$       (c)  $\text{BH}_3$       (d)  $\text{NH}_4^+$

19. Which of the following is a correct Lewis structure of diazomethane,  $\text{CH}_2\text{N}_2$ ?



20. Which of the following Lewis structures of protonated methanamide is incomplete?



**KEYS**

1. (c)    2. (d)    3. (c)    4. (a)    5. (b)  
 6. (a)    7. (c)    8. (c)    9. (d)    10. (c)  
 11. (c)    12. (c)    13. (a)    14. (c)    15. (d)  
 16. (b)    17. (d)    18. (c)    19. (d)    20. (b)