Electron Dot Diagrams

Each of these compounds is covalently bonded. Please write two structures for each compound. First, do a complete Lewis structure (also called dot diagram), and second, do a structure that uses dashes for bonds.

CH_4	$CHCl_3$	CH_2Cl_2	CH_3Cl	CCl_4	$AlCl_3$	$AlCl_4^{1-}$
CO_2	$HClO$	HCN	H^{1-}	NH_3	NH_4^+	PCl_3
SiF_4	BH_3	BH_4^-	BF_3	OH^{1-}	C_2H_6	C_2H_5OH
NH_2^{1-}	H_2O_2	CH_3OH	C_2H_4	C_2H_3Cl	$C_2H_2Cl_2$	NF_3
Cl_2O	H_2O	C_2H_2	C_2HCl	C_2Cl_2	H_3O^+	

1. Predict the molecular structures of each of the following species.

(a) BCl_3 _____

(b) SiO_2 _____

(c) MgF_2 _____

(d) GeH_4 _____

(e) PF_6^- _____

(f) SO_2 _____

(g) AsH_3 _____

(h) $SeCl_2$ _____

(i) SeO_4^{2-} _____

(j) $SbCl_5$ _____

18. Name each of the following compounds:

a. $MgSO_4$
b. N_2O_3
c. Ce_2O_3
d. $KMnO_4$
e. NiO
f. $BaSO_4$
g. $Fe(IO_4)_3$
h. SO_3
i. $KClO_4$

19. Name each of the following compounds:

a. NI_3
b. PCl_5
c. CO
d. P_4O_{10}
e. N_2O_4
f. NH_3

20. Name each of the following compounds:

a. P_4O_6
b. KOH
c. N_2
d. PH_3
e. BF_3
f. AgCl
g. $KHCO_3$
h. $AgNO_3$

21. Name each of the following compounds:

a. HIO_3
b. HBr
c. HNO_2
d. HCN
e. $NaNO_2$
f. K_2SO_3
g. $NaHSO_3$

22. Name each of the following compounds:

a. UF_6
b. $Cu(NO_3)_2$
c. H_3PO_4
d. SF_6
e. N_2H_4
f. $Mg(OH)_2$
g. $SnCl_2$
h. $NaCO_3$

23. Write formulas for each of the following compounds:

a. sodium cyanide
b. tin (II) floride
c. sodium hydrogen sulfate
d. lead (II) nitrate
e. iron (III) oxide
f. calcium phosphate
g. sodium bromate
h. hydrogen iodide

24. Write formulas for each of the following compounds:

a. sodium sulfate
b. manganese dioxide
c. potassium chlorate
d. potassium hypochlorite
e. lithium aluminum hydride
f. barium chloride
g. magnesium oxide
h. copper (I) oxide

25. Write formulas for each of the following compounds:

a. potassium carbonate
b. magnesium hydroxide
c. dinitrogen tetroxide
d. hypoiodous acid
e. iron (III) chloride
f. tin (IV) oxide
g. rubidium nitrate
h. potassium chlorate
i. carbon tetrachloride
j. sodium iodate
k. potassium permanganate
l. sulfurous acid
m. potassium hydrogen phosphate
n. ammonium acetate
o. ammonium dichromate
p. hydroiodic acid

26. Give the names of the following acids:

a. H_2SO_3
b. HI
c. HBr
d. HNO_2
e. H_3PO_4
f. HCl

27. Give formulas for the following acids:

a. nitric acid
b. hydrofluoric acid
c. sulfuric acid
d. hydrocyanic acid
e. hydrosulfuric acid
f. acetic acid

23. Draw Lewis dot structures for the following atoms, ions or molecules:

a. Sr
b. Br^-
c. ICN
d. Ga
e. $GaCl_4^-$
f. P^{3-}
g. $NaNH_2$
h. CSe_2

24. Draw Lewis structures for the following:

a. H^+
b. C
c. P
d. P^{5+}
e. Cl^-

25. Draw Lewis structures for the following:

a. AsF_3
b. O_3
c. H_3O^+
d. BH_4^-
e. NH_4
f. O_2

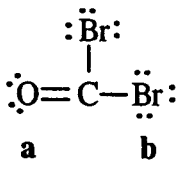
26. Draw Lewis dot structures for the following:

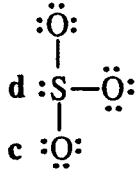
a. BCl_3
b. AsF_5
c. BrO_3^-
d. S_2F_{10} (contains a S-S bond)

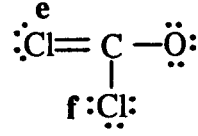
27. Draw Lewis dot structures for the following:

a. $SbCl_3$
b. Alf_6^{3-}
c. PCl_5

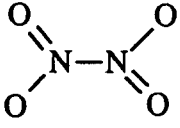
28. Assign formal charges to each of the labeled atoms.







29. Draw the remaining resonance forms for N_2O_4.



30. Draw a Lewis structure and any resonance forms of benzene, C_6H_6 (benzene consists of a ring of six carbon atoms with one hydrogen bonded to each carbon).

31. Predict the structure of each of the following molecules or ions:

a. SeF_6
b. N_2O
c. ClF_4^+
d. ClO^-
e. CF_3Cl (carbon is central atom).

32. Using the VSPER model, determine the molecular geometry for each of the following molecules:

a. SCl_4
b. H_2Se
c. IF_4^-
d. $SnCl_5^-$
e. $TlCl_2^+$