

Lewis Structure Problems

Fill in the blanks below with the correct term.

triple double single resonance Lewis valence unshared

1. An electron in the outermost energy level of an atom is a _____ electron.
2. When a chemical symbol represents the nuclei and the kernel electrons and dots are used to represent valence electrons it is called a(n) _____ structure.
3. If there is more than one possible Lewis structure for a compound it is called a(n) _____ structure.
4. A covalent bond in which two atoms share two pairs of electrons is called a(n) _____ covalent bond.
5. A covalent bond in which two atoms share three pairs of electrons is called a(n) _____ covalent bond.
6. A bond in which two atoms share one pair of electrons is a _____ covalent bond.
7. A pair of electrons in the valence shell of an atom that are not shared is called a(n) _____ pair.

Answer the following items in the space provided.

8. Draw the Lewis structure for Methanol (CH_3OH). Methanol is used as a solvent, in antifreeze, and for the production of formaldehyde.
9. Propane, C_3H_8 , is a common fuel for gas barbecue grills. Draw the Lewis structure for propane.

10. Draw the Lewis structure for water, H_2O .

11. Draw the Lewis structure for carbon monoxide, CO .

12. Draw the Lewis structure for the rocket propellant nitryl fluoride, NO_2F .

13. Draw the Lewis structures for C_2H_2 .

Answer the following item in the space provided.

14. Explain the difference between single, double, and triple bonds.

Name the following compounds.

15. PbCl_2

16. KCl

17. LiO_2

18. As_2O_3

19. PBr_3

20. SF_4

21. N_2O_5

Write the formulas for the following compounds.

22. nitrogen monoxide

23. carbon dioxide

24. carbon tetrachloride

25. carbon disulfide

Draw the Lewis structure for each of the following molecules.

a. CH_4

b. CCl_4

c. CO_2