

Chemical Bonding Worksheet

1. A molecule of which of the following compounds contains a double bond?
(A) C_3H_8 (B) C_2H_6 (C) C_2H_4 (D) C_2H_6O (E) CH_4
2. A compound that exhibits resonance is:
(A) SO_2 (B) N_2 (C) CO_2 (D) HCl (E) NH_3
3. The best example of a nonpolar molecule containing polar bonds is:
(A) F_2 (B) SO_2 (C) CS_2 (D) PCl_3
4. Which of the following is nonpolar?
(A) F_2O (B) HCN (C) SO_2 (D) NO_2^- (E) NO_2^+
5. Which of the following compounds does not follow the Octet Rule?
(A) H_2O (B) PH_3 (C) PCl_3 (D) PCl_5 (E) SO_3
6. Which contains the shortest oxygen - oxygen bond?
(A) O_2 (B) O_3 (C) O_2^{2-} (D) HO_2^-
7. Which species is a free radical?
(A) N_2O (B) NO_2^- (C) NO_2^+ (D) NO
8. Which of the following molecules has the shortest bond length?
(A) N_2 (B) O_2 (C) Cl_2 (D) Br_2 (E) I_2
9. Which of the following molecules exhibits π bonding?
(A) H_2O (B) F_2O (C) HCN (D) NH_3 (E) CCl_4
10. The best example of a nonpolar molecule containing polar bonds is:
(A) CSe_2 (B) H_2O (C) CH_4 (D) CCl_4
11. Which of the following has zero dipole moment (i.e. is non-polar)?
(A) H_2O (B) NO_2 (C) CCl_4 (D) SO_3^{2-} (E) HF