1. What is the mass percent of chlorine in PCl5?
   1. 53.4%
   2. 17.3%
   3. **85.1%**
   4. 14.9%
2. A compound contains 6.87 g of iron and 13.1 g of the element chlorine. What is the mass percent of iron in this compound?
   1. **34.4%**
   2. 52.4%
   3. 65.6%
   4. 87.4%
3. What is the empirical formula for propyl acetate, C5H10O2?
   1. **C5H10O2**
   2. CH2O2
   3. C10H20O4
   4. CH2O
4. Which pair of compounds have the same empirical formula?
   1. NO2 and NO3
   2. **C2H2 and C6H6**
   3. NH3 and N2H4
   4. CH4 and C2H6
5. Which formula must be a molecular formula?
   1. N2O
   2. **N2H4**
   3. NaCl
   4. NH3
6. A compound is 52.14% C, 13.13% H, and 34.73% O by mass. What is the compound’s empirical formula?
   1. C2H8O3
   2. **C2H6O**
   3. C4HO3
   4. C3HO6
7. A compound has the empirical formula CH2O and a molar mass of 120.10 g/mol. What is the molecular formula for the compound?
   1. CH2O
   2. C2H4O2
   3. C3H6O3
   4. **C4H8O4**
8. A compound contains 26.58% K, 35.45% Cr, and 37.97% O. What is its empirical formula?
   1. KCrO
   2. K0.680Cr0.682O2.37
   3. KCrO3.5
   4. KCrO4
   5. **K2Cr2O7**
9. An unknown hydrocarbon contains 40.00% C, 6.72% H, and 53.28% O. The compound’s molar mass is 180.16 g/mol. What is the molecular formula of the compound?
   1. **C6H12O6**
   2. C3H7O3
   3. CH2O
   4. C3.33H6.67O3.33
10. A binary compound of mercury and oxygen decomposes upon heating, producing oxygen gas, which escapes, leaving mercury residue behind. Heating 0.6498 grams of the compound leaves a residue of 0.6018 grams behind. What is the empirical formula for the compound?
    1. **HgO**
    2. HgO2
    3. Hg2O4
    4. Hg2O2
    5. HgO6