

① CO

$$C = \frac{12.01 \text{ g/mol}}{12.01 \text{ g/mol} + 16.00 \text{ g/mol}} \times 100 = \boxed{42.88\%}$$

$$O = \frac{16.00 \text{ g/mol}}{12.01 \text{ g/mol} + 16.00 \text{ g/mol}} \times 100 = \boxed{57.12\%}$$

② MgCl<sub>2</sub>

$$Mg = \frac{24.31 \text{ g/mol}}{24.31 \text{ g/mol} + (35.45 \text{ g/mol} \times 2)} \times 100 = \boxed{25.53\%}$$

$$Cl = \frac{35.45 \text{ g/mol} \times 2}{24.31 \text{ g/mol} + (35.45 \times 2)} \times 100 = \boxed{74.47\%}$$

③ HgO

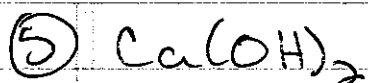
$$Hg = \frac{200.59 \text{ g/mol}}{200.59 \text{ g/mol} + 16.00 \text{ g/mol}} \times 100 = \boxed{92.61\%}$$

$$O = \frac{16.00 \text{ g/mol}}{200.59 \text{ g/mol} + 16.00 \text{ g/mol}} \times 100 = \boxed{7.387\%}$$

④ K<sub>2</sub>O

$$K = \frac{39.10 \text{ g/mol} \times 2}{(39.10 \text{ g/mol} \times 2) + 16.00 \text{ g/mol}} \times 100 = \boxed{83.01\%}$$

$$O = \frac{16.00 \times 100}{(39.10 \text{ g/mol} \times 2) + 16.00 \text{ g/mol}} = \boxed{16.99\%}$$



$$\text{Ca} = \frac{40.08\%/\text{mol}}{40.08\%/\text{mol} + (16.00\%/\text{mol} \times 2) + (1.008\%/\text{mol} \times 2)} \times 100 = \boxed{54.09\%}$$

$$\text{O} = \frac{16.00\%/\text{mol} \times 2}{74.096\%/\text{mol}} \times 100 = \boxed{43.19\%}$$

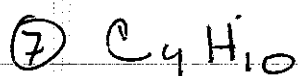
$$\text{H} = \frac{1.008\%/\text{mol} \times 2}{74.096\%/\text{mol}} \times 100 = \boxed{2.721\%}$$



$$\text{N} = \frac{14.01\%/\text{mol} \times 2}{(14.01\%/\text{mol} \times 2) + (1.008\%/\text{mol} \times 8) + 32.07\%/\text{mol}} \times 100 = \boxed{41.11\%}$$

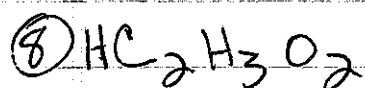
$$\text{H} = \frac{8 \times 1.008\%/\text{mol}}{68.154\%/\text{mol}} \times 100 = \boxed{11.83\%}$$

$$\text{S} = \frac{32.07\%/\text{mol}}{68.154\%/\text{mol}} \times 100 = \boxed{47.06\%}$$



$$\text{C} = \frac{(12.01\%/\text{mol} \times 4)}{58.12\%/\text{mol}} \times 100 = \boxed{82.66\%}$$

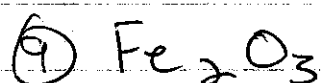
$$\text{H} = \frac{1.008\%/\text{mol} \times 10}{58.12\%/\text{mol}} \times 100 = \boxed{17.34\%}$$



$$\text{C} = \frac{12.01 \times 2}{60.052 \text{ g/mol}} \times 100 = \boxed{40.00\%}$$

$$\text{H} = \frac{1.008 \text{ g/mol} \times 4}{60.052 \text{ g/mol}} \times 100 = \boxed{6.714\%}$$

$$\text{O} = \frac{16.00 \text{ g/mol} \times 2}{60.052 \text{ g/mol}} \times 100 = \boxed{53.29\%}$$



$$\text{Fe} = \frac{55.85 \text{ g/mol} \times 2}{159.7 \text{ g/mol}} \times 100 = \boxed{69.94\%}$$

$$\text{O} = \frac{16.00 \times 3}{159.7 \text{ g/mol}} \times 100 = \boxed{30.06\%}$$



$$\text{Cu} = \frac{63.55 \text{ g/mol}}{187.57 \text{ g/mol}} \times 100 = \boxed{33.88\%}$$

$$\text{N} = \frac{14.01 \text{ g/mol} \times 2}{187.57 \text{ g/mol}} \times 100 = \boxed{14.94\%}$$

$$\text{O} = \frac{16.00 \text{ g/mol} \times 6}{187.57 \text{ g/mol}} \times 100 = \boxed{51.18\%}$$

11) Empirical formula problem

