Answer on Question #44322 – Chemistry – Organic Chemistry

Questions

1) In hydrogen peroxide (H_2O_2) the ratio of masses of H:O is **X**:64, Find **X** ?

2) If the molecular mass of CH_3CO_2 is 'M', Calculate M/20?

3) In $H_2C_2O_4$ the ratio of masses of C:O is 3:y, Find y ?

4) In the formation of water 1 gm of H combines with y gms of O. Calculate y ?

Solution

1) Molar mass of H is 1 g/mol and molar mass of O is 16 g/mol, so we can write the proportion:

2×1 g/mol (H) – 2×16 g/mol (O)

        X (H) – 64 (O),

whence

X = $(2\times64)/(2\times16)$ = 4

2) Molar mass of C is 12 g/mol, molar mass of H is 1 g/mol and molar mass of O is 16 g/mol, so

M = $2\cdot12$ g/mol + $3\cdot1$ g/mol + $2\cdot16$ g/mol = 59 g/mol

M/20 = 59/20 = 2.8 g/mol

3) Molar mass of C is 12 g/mol and molar mass of O is 16 g/mol, so we can write the proportion:

2×12 g/mol (C) – 4×16 g/mol (O)

        3 (C) – y (O),

whence

y = $(4\times16\times3)/(2\times12)$ = 8

4) Molar mass of H is 1 g/mol and molar mass of O is 16 g/mol, molecular formula of water is H_2O, so we can write the proportion

2×1 g/mol (H) – 16 g/mol (O)

        1 g (H) – y g (O),

whence

y =$(16\times1)/2$ = 8

Answers:

1) **X** = 4

2) **M/20 = 2.8**

3) **y = 8**

4) **y = 8**