YAKEEN NEET 2.0

2026

Some Basic Concept of Chemistry

MPQ Solution - 05 | **Physical Chemistry**

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Question

Statement-I: One atomic mass unit is defined as one twelfth of the mass of one carbon-12 atoms.

Statement-II: Carbon-12 isotopes is the most abundant isotope of carbon and has been chosen as standard.

A. Statement-I is true, Statement-II is true; Statement-II is correct explanation for Statement-I.

B. Statement-I is true, Statement-II is true; Statement-II is not a correct explanation for Statement-I.

C. Statement-I is true, Statement-II is false

D. Statement-I is false, Statement-II is true

Question

G.M.M = 60×12 + 122×1
= 720 + 122 = 842

The weight of a molecule of the compound $C_{60}H_{122}$ is

(A) 1.4×10^{-21} g

(B) 1.09×10^{-21} g

(C) 5.025×10^{23} g

(D) 16.023×10^{23} g

$$n = \frac{1}{6.022 \times 10^{23}}$$

$$\text{mass} = \frac{1}{6.022 \times 10^{23}} \times 842$$

$$= \frac{842}{6} \times 10^{-23} \text{ g}$$

$$\frac{840}{6} \times 10^{-23} = \frac{14}{10} \times 10^{-22} \text{ g}$$

$$= 1.4 \times 10^{-21} \text{ g}$$

Question

Which has the maximum number of molecules among the following ? Molar mass of $CO_2 = 44$ g,

n

A 44 g of CO_2 $\frac{44}{44} = 1$

B 48 g O_2 $\frac{48}{32} = \frac{3}{2}$

C 8 g H_2 $\frac{8}{2} = 4$

D 64 g SO_2 $\frac{64}{64} = 1$

Question

The ratio of masses of oxygen and nitrogen in a particular gaseous mixture is 1 : 4. The ratio of number of their molecule is

A 1 : 4

B 7 : 32

C 1 : 8

D 3 : 16

$$\frac{n_{O_2}}{n_{N_2}} = \frac{1 \times 28}{32 \times 4} = \frac{7}{32}$$

Question (NCERT: PL-18 | JEE Main April 3, 2025 (I))

Among 10^{-9} g (each) of the following elements, which one will have the highest number of atom? Element : Pb, Po, Pr and Pt

G.A.M 207 209 141 195

(A) Po

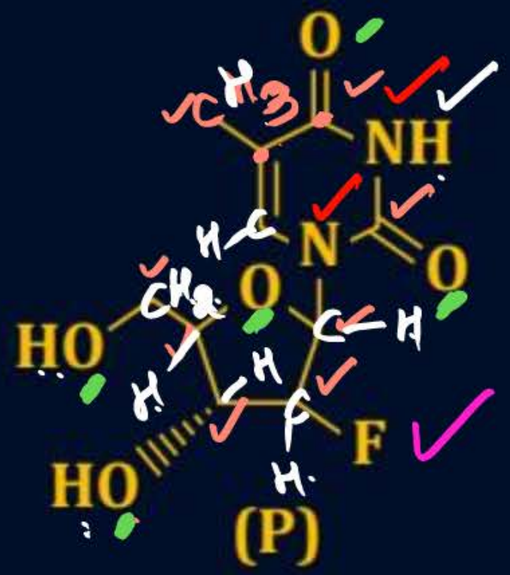
(B) Pr

(C) Pb

(D) Pt

Question (NCERT: PL-18 | NV, JEE Main April 2, 2025 (I))

0.1 mol of the following given antiviral compound (P) will weigh 260 × 10^{-1} g
(Given : molar mass in g mol^{-1} H : 1, C : 12, N : 14, O : 16, F : 19, I : 127)



(P)

$C_{10}H_{13}O_5N_2F$

$10\times12 + 13\times1 + 16\times5 + 2\times14 + 19 = 260$

0.1 mole mass $= 0.1 \times 260$

$= \frac{26}{10} \times 10$

$= 260 \times 10^{-1}$ g

Question (NCERT: PL-23 | NV, JEE Main June 27, 2022 (I))

Two elements A and B which form 0.15 moles of A_2B and AB_3 type compounds. If both A_2B and AB_3 weigh equally, then the atomic weight of A is __2__ times of atomic weight of B.

A B

x y

mass of $A_2B = 0.15(2x+y)$

$AB_3 = 0.15(x+3y)$

$0.15(2x+y) = 0.15(x+3y)$

$2x+y = x+3y$

$2x-x = 3y-y$

$x = 2y$

Question (NCERT: PL-18 | NV, JEE Main June 25, 2022 (I))

$12\times7+5+14\times3+16\times6=227$

The number of N atoms in 681 g of $C_7H_5N_3O_6$ is $x \times 10^{21}$. The value of x is _____ ($N_A = 6.02 \times 10^{23}\ mol^{-1}$) (Nearest Integer)

$$\text{N atoms} = x \times 10^{21} = \frac{681}{227} \times 6.02 \times 10^{23} \times 3$$

$$x \times 10^{21} = 9 \times 6.02 \times 10^{23}$$

$$x = 5418$$

Question (NCERT: PL-18 | JEE Main April 12, 2019 (I)

5 moles of AB_2 weigh 125×10^{-3} kg and 10 moles of A_2B_2 weigh 300×10^{-3} kg. The molar mass of A (M_A) and molar mass of B(M_B) in kg mol^{-1} are :

(A) $M_A = 10 \times 10^{-3}$ and $M_B = 5 \times 10^{-3}$

(B) $M_A = 50 \times 10^{-3}$ and $M_B = 25 \times 10^{-3}$

(C) $M_A = 25 \times 10^{-3}$ and $M_B = 50 \times 10^{-3}$

(D) $M_A = 5 \times 10^{-3}$ and $M_B = 10 \times 10^{-3}$

a b

$\text{Mass} = 125 \times 10^{-3} = 5 \times (a + 2b)$

$300 \times 10^{-3} = 10 \times (2a + 2b)$

$a + 2b = 0.025$

$\pm 2a \pm 2b = \pm 0.003$

$\pm a = \pm 0.005$

$a + 2b = 25 \times 10^{-3}$

$5 \times 10^{-3} + 2b = 25 \times 10^{-3}$

$2b = 20 \times 10^{-3}$

$b = 10^{-2}$

THANK YOU