Yakeen NEET 2.0 2026

DPP SOLUTION

- Subject – Physical Chemistry
- Chapter – Some Basic Concept of Chemistry

DPP No.- 03

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Question-1

An element, X has the following isotopic composition,

^{200}X : 90%

^{199}X : 8%

^{202}X : 2%

the weighted average atomic mass of the naturally occuring element 'X' is closest to

1. 201 amu
2. 202 amu
3. 199 amu
4. 200 amu

Ans. (4)

Question-2

The atomic weight of chlorine is 35.5. It has two isotopes of atomic weight 35 and 37. What is the percentage of the heavier isotope in the sample?

1. 5
2. 10
3. 25
4. 20

av. at. mass Cl = $35.5 = \frac{37x + 35(100-x)}{100}$

% age

$^{35}Cl \rightarrow (100-x)$

$^{37}Cl \rightarrow x$

$3550 = 37x + 3500 - 35x$

$3550 - 3500 = 2x$

$2x = 50$

$x = 25\%$

Ans. (3)

Question-3

B has two isotopes $^{10}B(19\%)$ and $^{11}B(81\%)$. The atomic mass of B is

1. 10.81
2. 11.5
3. 11
4. 10.5

$$\text{Av. at. mass of B} = \frac{19 \times 10 + 81 \times 11}{100} = \frac{190 + 891}{100}$$

$$= 10.81$$

Ans. (1)

Question-4

If an element Z exist in two isotopic form Z^{50} and Z^{52}. The average atomic mass of Z is 51.7. Calculate the abundance of each isotopic forms

1. $Z^{50}(15\%), Z^{52}(85\%)$
2. $Z^{50}(85\%), Z^{52}(15\%)$
3. $Z^{50}(5\%), Z^{52}(95\%)$
4. $Z^{50}(95\%), Z^{52}(5\%)$

x (100 − x)

av. at-mass of $Z = 51.7 = \frac{50x + 52(100-x)}{100}$

$5170 = 50x + 5200 - 52x$

$+30 = +2x$

$x = 15\%$

Ans. (1)

Question-5

Atomic mass of boron is 10.81 . It has two isotopes 80% with 20% and abundance respectively. The atomic mass of the isotope having 80% abundance is 11.01. The atomic mass of the other isotope is

1. 10.80
2. 11.01
3. 10.01
4. 21.82

av. at. mass of B = 10.81 = $\frac{20y + 80 \times 11.01}{100}$

het at. mass of 20% isotope = y

$1081 = 20y + 880.8$

$1081 - 880.8 = 20y$

$200.2 = 20y$

$y = \frac{200.2}{20} = 10.01$

$11.01 \times 8 = 88.08$

Ans. (3)

Question-6

Carbon occur in nature as a mixture of C12 and C13. Average atomic mass of carbon is 12.011, what is the % aboundance of C12 in nature?

(1) 99.8%

(2) 98.9%

(3) 97.6%

(4) 98.5%

av. at mass of C $= 12.01 = \frac{x \times 12 + (100-x) \times 13}{100}$

$1201 = 12x + 1300 - 13x$

$+99 = +x$

$x = 99$ -1.

Ans. (2)

Question-7

Boron has two isotopes boron-10 and boron-11 whose percentage abundances are 19.6% and 80.4% respectively. What is the average atomic mass of boron?

1. 10.8
2. 10.6
3. 9.6
4. None of these

av. at. mass of B $= \frac{19.6 \times 10 + 80.4 \times 11}{100}$

$= \frac{196 + 884.4}{100}$

$= \frac{1080.4}{100} = 10.804$

804
× 11
804
804x
8844

Ans. (1)

Question-8

'He' has two naturally occurring isotopes He-3 and He–4 . The average atomic mass of helium is 3.98 amu. Which isotope is more abundant in nature?

More ↓. age

1. He – 4
2. He – 3
3. both are equally abundant
4. none of these

Ans. (1)

Question-9 (JEE advance)

Given that the abundances of isotopes ^{54}Fe, ^{56}Fe and ^{57}Fe are 5%, 90% and 5%, respectively, the atomic mass of Fe is

1. 55.85
2. 55.75
3. 55.95
4. 56.05

av. at mass of Fe $= \frac{54\times5 + 56\times90 + 57\times5}{100}$

$= \frac{270 + 5040 + 285}{100}$

$= \frac{5595}{100} = 55.95$

5040
555
5595

Ans. (3)

Question-10

Atomic weight of Ne is 20.2. Ne is mixture of ^{20}Ne and ^{22}Ne, relative abundance of heavier isotope is

^{20}Ne → x % ^{22}Ne → $(100-x)$

$100 - 90 = 10\%$.

1. 90
2. 20
3. 40
4. 10

$$20.2 = \frac{x \times 20 + 22(100-x)}{100}$$

$$2020 = 20x + 2200 - 22x$$

$$+180 = +2x$$

$$x = \frac{180}{2} = 90$$

Ans. (4)

Thank You...