

NEET SOME BASIC CONCEPTS OF CHEMISTRY — CALCULATION OF NUMBER OF PARTICLES (Y-MAP) — PYQS

Max. Marks: 64
Questions: 16

Section A (MCQ) — 16 questions

Q.1 The number of hydrogen atoms present in 5.4 g of urea is :

(Given : Molar mass of urea : 60 g mol^{-1} , $N_A : 6.022 \times 10^{23} \text{ particles mol}^{-1}$) [NEET (UG) 2026]

- (1) 2.168×10^{22} (2) 2.168×10^{23}
 (3) 1.084×10^{22} (4) 1.084×10^{23}

Scan or tap for the full solution



Q.2 Among the following, choose the ones with equal number of atoms.

- A. 212 g of $\text{Na}_2\text{CO}_3(\text{s})$ [molar mass = 106 g]
 B. 248 g of $\text{Na}_2\text{O}(\text{s})$ [molar mass = 62 g]
 C. 240 g of $\text{NaOH}(\text{s})$ [molar mass = 40 g]
 D. 12 g of $\text{H}_2(\text{g})$ [molar mass = 2 g]
 E. 220 g of $\text{CO}_2(\text{g})$ [molar mass = 44 g]

Choose the correct answer from the options given below: [NEET (UG) 2025]

- (1) B, C, and D only (2) B, D, and E only
 (3) A, B, and C only (4) A, B, and D only

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Q.3 The highest number of helium atoms is in

[NEET (UG) 2024]

- (1) 4 mol of helium (2) 4u of helium
 (3) 4 g of helium (4) 2.271098 L of helium at STP

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Q.4 1.0 g of H_2 has same number of molecules as in:

[RE-NEET (UG) 2024]

- (1) 14 g of N_2 (2) 18 g of H_2O
 (3) 16 g of CO (4) 28 g of N_2

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Q.5 Which one of the following has maximum number of atoms? [NEET (UG) 2020]

- (1) 1 g of $\text{Mg}(\text{s})$ [Atomic mass of Mg = 24]
 (2) 1 g of $\text{O}_2(\text{g})$ [Atomic mass of O = 16]
 (3) 1 g of $\text{Li}(\text{s})$ [Atomic mass of Li = 7]
 (4) 1 g of $\text{Ag}(\text{s})$ [Atomic mass of Ag = 108]

Scan or tap for the full solution



Q.6 In which case is number of molecules of water maximum? [NEET 2018]

- (1) 18 mL of water
 (2) 0.18 g of water
 (3) 0.00224 L of water vapours at 1 atm and 273 K
 (4) 10^{-3} mol of water

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Q.7 Suppose the elements X and Y combine to form two compounds XY_2 and X_3Y_2 . When 0.1 mole of XY_2 weighs 10 g and 0.05 mole of X_3Y_2 weighs 9 g, the atomic weights of X and Y are

[NEET 2016 (Phase 2)]

- (1) 40, 30 (2) 60, 40 (3) 20, 30 (4) 30, 20

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Q.8 If Avogadro number N_A , is changed from $6.022 \times 10^{23} \text{ mol}^{-1}$ to $6.022 \times 10^{20} \text{ mol}^{-1}$, this would change [AIPMT 2015]

- (1) the mass of one mole of carbon
 (2) the ratio of chemical species to each other in a balanced equation
 (3) the ratio of elements to each other in a compound
 (4) the definition of mass in units of grams.

Scan or tap for the full solution



Q.9 The number of water molecules is maximum in

[AIPMT 2015]

- (1) 1.8 gram of water (2) 18 gram of water
 (3) 18 moles of water (4) 18 molecules of water

Scan or tap for the full solution



Q.10 A mixture of gases contains H_2 and O_2 gases in the ratio of 1 : 4 (w/w). What is the molar ratio of the two gases in the mixture ? [AIPMT 2015 (Cancelled)]

- (1) 16 : 1 (2) 2 : 1 (3) 1 : 4 (4) 4 : 1

Scan or tap for the full solution



Q.11 Which has the maximum number of molecules among the following ? [AIPMT 2011 (Mains)]

- (1) 44 g CO_2 (2) 48 g O_3
(3) 8 g H_2 (4) 64 g SO_2

Scan or tap for the full solution



Q.12 The number of atoms in 0.1 mol of a triatomic gas is ($N_A = 6.02 \times 10^{23} \text{ mol}^{-1}$) [AIPMT 2010 (Prelims)]

- (1) 6.026×10^{22} (2) 1.806×10^{23}
(3) 3.600×10^{23} (4) 1.800×10^{22}

Scan or tap for the full solution



Q.13 Volume occupied by one molecule of water (density = 1 g cm^{-3}) is [AIPMT 2008]

- (1) $3.0 \times 10^{-23} \text{ cm}^3$ (2) $5.5 \times 10^{-23} \text{ cm}^3$
(3) $9.0 \times 10^{-23} \text{ cm}^3$ (4) $6.023 \times 10^{-23} \text{ cm}^3$

Scan or tap for the full solution



Q.14 The maximum number of molecules is present in [AIPMT 2004]

- (1) 15 L of H_2 gas at STP
(2) 5 L of N_2 gas at STP
(3) 0.5 g of H_2 gas
(4) 10 g of O_2 gas

Scan or tap for the full solution



Q.15 Which has maximum molecules? [AIPMT 2002]

- (1) 7 g N_2 (2) 2 g H_2
(3) 16 g NO_2 (4) 16 g O_2

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Q.16 Specific volume of cylindrical virus particle is $6.02 \times 10^{-2} \text{ cc/g}$ whose radius and length are 7 Å and 10 Å respectively. If $N_A = 6.02 \times 10^{23}$, find molecular weight of virus. [AIPMT 2001]

- (1) 15.4 kg/mol (2) $1.54 \times 10^4 \text{ kg/mol}$
(3) $3.08 \times 10^4 \text{ kg/mol}$ (4) $3.08 \times 10^3 \text{ kg/mol}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	2	4	1	1	3	1	1	1	3	4	3
Ques.	12	13	14	15	16						
Ans.	2	1	1	2	1						