Protons , Neutrons and Electrons calculations

1. Number of protons, neutrons & electrons in the element $_{89}X^{231}$ is

(A) 89, 231, 89 (B) 89, 89, 242 (C) 89, 142, 89 (D) 89, 71, 89

2. The charge on the atom containing 17 protons, 18 neutrons and 18 electrons is

(A) +1 (B) –2 (C) –1 (D) Zero

3. In an atom $_{13}Al^{27}$. number of protons is(a) electron is (b) and neutron is (c). Hence ratio will be [in order c : b : a]

(A) 13 : 14 : 13 (B) 13 : 13 : 14 (C) 14 : 13 : 13 (D) 14 : 13 : 14

4. A and B are two elements which have same atomic weight and are having atomic number 27 and 30 respectively. If the atomic weight of A is 57 then number of neutron in B is

(A) 27 (B) 33 (C) 30 (D) 40

5. The atomic mass 25 had 13 neutron's in its nucleus. What its ion can be

(A) Mn^{+2} (B) Cr^{+3} (C) Al^{+3} (D) Mg^{+2}

6. The sum of number of neutrons and protons in all of the isotopes of hydrogen is

(A) 3 (B) 4 (C) 5 (D) 6

7. Choose the false statement about deuterium

(A) It is an isotope of hydrogen (B) It contains [(1 e^-) + (1 P^+) + (1 (n)]

(C) It contains only [(1 (P^+) + (1 (n)] (D) D_2O is called the heavy water

8. Complete the following table :

	Symbol	No. of protons in nucleus	No. of neutrons in nucleus	No. of electrons	Netcharge
1	Y_{39}^{89}				
2	-	20	20		+2
3	-	23	28	20	
4	-	15	16		-3

	Symbol	No. of protons in nucleus	No. of neutrons in nucleus	No. of electrons	Netcharge
1	Y_{39}^{89}	39	50	39	0
2	X^{+2}	20	20	18	+2
3	Z^{+3}	23	28	20	+3
4	A^{-3}	15	16	18	-3

Mole calculations

9. No. of atoms in 4.25 g of NH_3 is approx

(A) 1×10^{23} (B) 1.5×10^{23} (C) 2×10^{23} (D) 6×10^{23}

10. The volume occupied by 4.4 g of CO_2 at 273 K and (P = 1 atm) is

(A) 22.4 L (B) 2.24 L (C) 0.224 L (D) 0.1 L

11. The number of neutrons present in 9 mg of O^{18} is

(A) 10 (B) $5N_A$ (C) 0.005 N_A (D) 0.0005 N_A

12. Rearrange the following (I to IV) in the order of increasing masses.

(I) 0.5 mole of O_3 (II) 0.5 gm molecule of Nitrogen

(III) 3.011×10^{23} molecule of O_2 (IV) 11.35 L of CO_2 at STP

(A) IV < III < II < I (B) II < III < IV < I (C) III < II < I < IV (D) I < II < III < IV

13. Total number of protons, neutrons and electrons present in 14 mg of ${}_6C^{14}$ is (Take $N_A = 6 \times 10^{23}$)

(A) 1.2×10^{22} (B) 1.2×10^{25} (C) 7.2×10^{21} (D) 1.08×10^{22}

14. Complete the following table : ($N_A = 6 \times 10^{22}$)

	Mass of sample	Moles of sample	Molecules in sample	Total atoms in sample
1	3.9g C_6H_6			
2		0.2 mole H_2O		
3			2.4×10^{22} molecules CO2	
4				3.6×10^{22} Total atoms in CH3OH sample

	Mass of sample	Moles of sample	Molecules in sample	Total atoms in sample
1	3.9g C_6H_6	0.05	$0.05N_A$	$0.6\ N_A$
2	3.6 g	0.2 mole H_2O	$0.2\ N_A$	$0.6\ N_A$
3	1.76 g	0.04	2.4×10^{22} molecules CO_2	7.2×10^{22}
4	0.032g	0.001	6×10^{21}	3.6×10^{22} Total atoms in CH_3OH sample

15. Number of electrons in 36mg of ${}^{18}_{8}O^{-2}$ ions are (Take $N_A = 6 \times 10^{23}$)

(A) 1.2×10^{21} (B) 9.6×10^{21} (C) 1.2×10^{22} (D) 1.9×10^{22}

16. Molar mass of electron is nearly ($N_A = 6 \times 10^{23}$)

(A) 9.1×10^{-31} kg mol^{-1} (B) 9.1×10^{-31} gm mol^{-1}

(C) 54.6×10^{-8} gm mol^{-1} (D) 54.6×10^{-8} kg mol^{-1}

17. Which of the following contain highest number of molecules

(A) 2.8 g of CO (B) 3.2 g of CH_4 (C) 1.7 g of NH_3 (D) 3.2 g of SO_2

18. 5.6 L of oxygen at 273 K and 1 atm is equivalent to

(A) 1 mole (B) 1/2 mole (C) 1/4 mole (D) 1/8 mole

19. Which has maximum number of molecules of O_2

(A) 32 gm of O_2 (B) 1 mole of O_2

(C) 1 gram molecule of O_2 (D) All have same

20. 1 gm - atom of nitrogen does not represents

(A) 6.02×10^{23} N_2 molecules (B) 22.4 lit. of N_2 at N.T.P.

(C) 11.2 lit. of N_2 at N.T.P. (D) 28 g of nitrogen

21.

Column-I	**Column-II**
(A) 6.023×10^{23} molecules of CO_2	(P) 1 mol
(B) 6.023×10^{23} molecules of water	(Q) 22.4 L
(C) 96 g of O_2 gas	(R) 2 mol
(D) 88 g of CO_2 gas	(S) 3 mol

HOME WORK (NCERT : 1.10, 1.28, 1.30)

Answers

RACE # 02

1. (C) **2.** (C) **3.** (C) **4.** (A) **5.** (D) **6.** (D) **7.** (C) **9.** (D) **10.** (B) **11.** (C)
12. (B) **13.** (A) **14.** **15.** (C) **16.** (D) **17.** (B) **18.** (C) **19.** (D) **20.** (ABD)
21. (A)→P,Q; (B)→P; (C)→S; (D)→R