Mole Concept

Multiple Choice questions (one answer correct)

(1) Avogadro's number represents the number of atoms in

(a) 12g of C^{12} (b) 320g of sulphur

(c) 32g of oxygen (d) 12.7g of iodine

(2) The number of moles of carbon dioxide which contain 8 g of oxygen is

(a) 0.5 mol (b) 0.20 mol

(c) 0.40 mol (d) 0.25 mol

(3) The total no of ions present in 111 g of $cacl_2$ is

(a) One mole (b) Two mole

(c) Three mole (d) Four moles

(4) Which of the following weighs the most ?

(a) one g-atom of nitrogen (b) One mole of water

(c) One mole of sodium (d) One molecule of H_2So_4

(5) 5.0 litre of 0.4 M H_2SO_4 Contains-

(a) 2.0 Mole Of H_2So4 (b) 0.4 mole H_2So_4

(c) 5.0 mole $H2So_4$ (d) 2.0 moles H_2O

(6) A symbol not only represents the name of the element but also represents-

(a) its atomic no. (b) 1 gm-atom

(c) its atomicity (d) Reactivity.

(7) Which has maximum number of atoms ?

(a) 24g of c (12) (b) 56g of Fe (56)

(c) 27g of Al (27) (d) 108g of Ag (108)

(8) Number of atoms of oxygen present in 10.6g Na_2Co_3 will be-

(a) 6.02×10^{22} (b) 12.04×10^{22}

(c) 1.806×10^{23} (d) 31.80×10^{23}

(9) The maximum no. of molecules is present in

(a) 15 L of H_2 gas at S.T.P (b) 5 L of N_2 gas at S.T.P

(c) 0.5 g of H_2 gas (d) 10 g of O_2 gas.

(10) The number of g-atom of oxygen in 6.02×10^{24} CO molecules is

(a) 1 (b) 0.5

(c) 5 (d) 10

(11) Number of electrons in 1.8 mL of H_2O is:

(a) 6.02×10^{23} (b) 3.011×10^{23} (c) 0.6022×10^{23} (d) 60.22×10^{23}

(12) Which names are associated with 1g / NA ?

(a) Rutherford (b) 1 Dalton

(c) 1 Avogram (d) 1 gram

(13) 100 g $caco_3$ is treated with I litre of 1N HCl. What would be the weight of co_2 libereted after the completion of the reaction ?

(a) 5.5 g (b) 11g

(c) 22g (d) 33g

(14) The mass of carbon present in 0·5 mole of K_4 $[Fe(CN)_6]$ is

(a) 1·8 g (b) 18 g

(c) 3·6 g (d) 36 g

(15) Number of water molecules in the drop of water,if 1 ml of water has 20 drops and A is Avogadro's number, is-

(a) 0·5A/18 (b) 0.05A

(C)0.5A (d) 0.05A/18

(16) Volume at N.T.P of 0.22 g of CO_2 is same as that of-

(a) 0.01 g of hydrogen (b) 0.085 g of NH_3

(c) 320 mg of gaseous So_2 (d) All the above.

(17) 0.224 L of H_2 gas at S.T.P is equivalent to

(a) 1 mol (b) 1g

(c) 6.02×10^{22} molecules (d) 0.01 mol

(18) 2.0 g of oxygen contains number of atoms same as in-

(a) 4g of s (b) 7g of nitrogen

(c) 0.5 g of H_2 (d) 12.3 g of Na.

(19) A sample of phosphrous trichloride(PCl_3) contains 1 .4 moles of the substance. how many atoms are there is the sample ?

(a) 5.6 (b) 4

(c) 8.431×10^{23} (d) 3.372×10^{24}

(20) Which of the following contains maximum no. of molecules ?

(a) 200 cc of NH_3 at S.T.P (b) 150 cc of N_3 at S.T.P

(c) 50 cc of So_2 at S.T.P (d) 150 cc of O_2 at S.T.P

(21) Which among the following is the heaviest?

(a) One mole is oxygen (b) One molecule of sulphur trioxide

(c) 100 amu of uranium (d) 44 g of carbon dioxide.

(22) 6.02×10^{22} molecules of N_2 at NTP will occupy a volume of

(a) 22.4 litres (b) 2.24 litres

(C) 6.02 litres (d) 6.02 mL

(23) How many grams are contained in 1 gram-atom of Na?

(a) 13g (b) 23g

(C) 1 g (d) 1/23g

(24) I mole of a compuund contain 1 mole of C and 2 moles of O. The molecular weight of the compound is

(a) 3 (b) 12

(C) 32 (d) 44

(25) The volume of gas at O°c and 700 mm pressure is 760 cc. The number of molecules present in this volume is

(a) 1.88×10^{22} (b) 6.022×10^{23}

(C) 18.8×10^{23} (d) 18.8×10^{22}

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(26) I mole of a diatomic element X_2 contains 34 and 40 moles of electrons and neutrons respectively.the isotopic formula of the element is

(a) $\frac{74}{34}x$ (b) $\frac{37}{17}x$

(C) $\frac{40}{34}x$ (d) $\frac{40}{20}x$

(27) 2 moles of H atoms at NTP occupy a volume of

(a) 11.2 litres (b) 44.8 litres

(C) 2 litres (d) 22.4 litres

(28) How many electron weigh one kilogram ?

(a) 6.022×10^{23} (b) $\frac{10^{31}}{9.108}$

(C) $\frac{1 \times 10^{8}}{9.108 \times 6.023}$ (d) $\frac{6.023}{9.108} \times 10^{54}$

(29) 1 amu is equal to

(a) $\frac{1}{12}$ of C-12 (b) $\frac{1}{14}$ of O-16

(C) 1g of H_2 (d) 1.66×10^{-23} kg

(30) 5 moles of a gas in closed vessel was heated from 300 K to 600 K. the pressure of gas doubled The number of moles of the gas will be

(a) 5 (b) 2.5

(C) 10 (d) 20

(31) One mole of oxygen gas is the volume of .

(a) 1 litre of oxygen at S.T.P.

(b) 32 litres of oxygen at S.T.P.

(c) 22.4 litres of oxygen at S.T.P.

(d) 6.02×10^{23} molecules of oxygen at any temperature and pressure.

(32) 5.6 litres of gas at N.T.P are found to have a mass of 11 g. The molecular mass of the gas is.

(a) 22 (b) 44 (c) 88 (d) 32

(33) The number of atoms of oxygen present in 10.6g of Na_2CO_3 will be.

(a) 6.02×10^{22} (b) 12.04×10^{22} (c)1.806×10^{23} (d) 31.8

(34) Which of the following has the largest number of aloms ?

(a) 0.5 g atom of Cu (b) 0.635 g of Cu

(c)0.25 mole of Cu (d) 3.35×10^{20} amu of Cu

(35) The number of molecules present in a drop of water weighing 0.06 g is approximately

(a) 10^{12} (b) 2×10^{12} (c) 3×10^{21} (d) 4×10^{21}

(36) Which of the following has maximum mass ?

(a) 0. g atom of carbon

(b) 0.1 mol of ammonia

(c) 6.02×10^{22} molecules of hydrogen gas

(d)1120 cc of carbon dioxide.

(37) Total number of atoms present 17 g of NH3 is

(a) 6.02×10^{23} (b) $2 \times 6.02 \times 10^{23}$ (c) $3 \times 6.02 \times 10^{23}$ (d) 4×10^{-24} g

(38) The mass of one atom of hydrogen is approxmately

a) 1 g (b) 0 . 5 g (c) $1 . 6 \times 10^{-24}$ g (d) $3.2 \times 6.02 \times 10^{-24}$g

(39) A gaseous mixture contains oxygen and nitrogen in the ratio of 1 : 4 by weight. Therefore the ratio of their number of molecules is

a) 1 : 4 (b) 1 : 8 (c) 7 : 32 (d) 3 : 16

(40) Volume at N.T.P. of 0.22 g of CO_2 is same as that of

(a) 0.01 g of hydrogen.

(b) 0.085 g of NH_3

(c) 320 mg of gaseous So_2.

(d) All the the above.

(41) Mass of a mole of electrons is :

(a) 0.20mg (b) 0.02mg

(c) 0.55mg (d) 1.00mg

(42) 5.6 litres of oxygen at NTP is equivalent of

(a) 1 mole (b) 1/2 mole

(C) 1/4 Mole (d) 1/8 mole

(43) The weight of 350 mL of diatomic gas at 0°C and 2 atm pressure is 1g. The wt. of one atom is

(a) 16/N (b) 32/N

(C) 16 N (d) 32 N (N is the Av. const.)

(44) The number of atoms present in 16 g of oxygen is

(a) $6.05 \times 10^{11.5}$ (b) 3.01×10^{23}

(C) $3.01 \times 10^{11.5}$ (d) 6.02×10^{23}

(45) Number of atoms in 12 g of $^{12}_{6}C$ is-

(a) 5 (b) 12

(C) 6.022×10^{23} (d) $12 \times 6.022 \times 10^{23}$

(46) Which of the following contains the greatest number of oxygen atoms?

(a) 1 g of O (b) 1g of O_2

(C) 1 g of O_3 (d) All have the same number of atoms

(47) The total number of atoms represented by the compound $CuS0_4 . 5H_20$ is -

(a) 27 (b) 21

(C) 5 (d) 8

(48) A gaseous oxide contains 30.4 % of nitrogen, one molecule of which contains one nitrogen atom. The density of the oxide relative to oxygen is -

(a) 0.94 (b) 1.44

(C) 1.50 (d) 3.0

(49) Number of electrons in 1.8 ml of H_2O is-

(a) 6.023×10^{23} (b) 0.6022×10^{23}

(C) 3.011×10^{23} (d) 6.022×10^{24}

(50) 22.4 litres of water vapour at NTP, when condensed to water, occupies an approximate volume of

(a) 18 litres (b) 1 litre

(C) 1 mL (d) 18 ml

(51) Which of the following has the highest mass?

(a) 1 g-atom of c (d) 3.011×10^{23} atoms of oxygen

(b) 1/2 mole of CH_4 (C) 10 mL of water

(52) If the atomic weight of carbon were set at 24 amu, the value of the Avogadro constant would be

(a) 6.022×10^{23} (b) 12.044×10^{23}

(C) 3.011×10^{23} (d) none of these

(53) If 32 g of O_2 contain 6.022×10^{23} molecules at NTP then 32g of S, under the same conditions, will contain,

(a) 6.022×10^{23} S (b) 3.011×10^{23} S (C) 12.044×10^{23} S (d) 1×10^{23} S

(54) Which of the following is correct ?

(a) g-mol.wt = mol. wt in gm = wt. of 6.02×10^{23} atom

(b) Mole = g-mol.wt

(C) Mole = N molecules = 6.02×10^{23} Molecules

(d) None of the above

(55) 11.2 Litres of a gas at STP weighs 14g. The gas could not be :

(a) N_20 (b) CO

(C) B_2H_6 (d) N_2

(56) Atomic mass of an elements is

(a) the actual mass of one atom of the element

(b) the relative mass of an atom of the element

(c) the average relative mass of different atoms of the element

(d) much different from the mass number of the element.

(57) The atomic mass of an element is measured relative to the mass of

(a) hydrogen atom

(b) oxygen atom

(c) carbon-12

(d) isotopic mixture of ^{12}C, ^{13}C and ^{14}C,

(58) One atomic mass unit is equivalent to

(a) 1.66×10^{-27} (b) 1.66×10^{-27} kg (c) 1.66×10^{-27} (d) 1.66×10^{-27} g

(59) The correct value of Avogadro's number is

(a) 6.02×10^{21} (b) 6.02×10^{22} (c) 6.02×10^{23} (d) 6.62×10^{-34}

(60) Which one of the following statements is incorect ?.

(a) One gram atom of carbon contains avogadro's number of atoms.

(b) One mole of oxygen gas contains Avogadro's number of atoms.

(c) One mole of hydrogen contains Avogadro's number of atoms.

(d) One mole of electrons stands for 6.02×10^{23} electrons

(61) The no. of gram atoms of oxygen present in 0.3 g--- mole of $(COOH)_2.2H_2O$ is:

(a) 0.6

(b) 1.8

(c) 1.2

(d) 3.6

(62) Which sample contains the largest number of atoms?

(a) 1 mg of C_4H_{10}

(b) 1 mg of N_2

(c) 1 mg of Na

(d) 1 mL of water

(63) One mole of P_4 molecules contain:

(a) 1 molecule of *p*

(b) 4 molecules of p

(c) $\frac{1}{4} \times 6.022 \times 10^{23}$ atoms of *p*

(d) 24.088 x 10^{23} atoms of *p*

(64.) The total number of protons, electrons and neutrons in 12 g of $^{12}_{6}C$ is:

(a) 1.084 x 10^{25}

(b) 6.022 x 10^{23}

(c) 6.022 x 10^{22}

(d) 18

(65.) 11.2 litre of a gas at STP weighs 14 g. The gas could not be:

(a) N_2

(b) CO

(c) B_2H_6

(d) N_2O

Mole Concept
Assignment - Answer

(1) a
(2) d
(3) c
(4) c
(5) a
(6) b
(7) a
(8) c
(9) a
(10) c
(11) a
(12) c, b
(13) c
(14) d
(15) d
(16) d
(17) d
(18) a
(19) d
(20) a
(21) d
(22) b
(23) b
(24) d
(25) a
(26) b
(27) d
(28) d
(29) a
(30) a
(31) c
(32) b
(33) c
(34) a
(35) c
(36) d
(37) d
(38) c
(39) c
(40) d
(41) c
(42) c
(43) a
(44) d
(45) c
(46) b
(47) b
(48) b
(49) a
(50) d
(51) a
(52) b
(53) a
(54) c
(55) a
(56) c
(57) c
(58) b
(59) c
(60) b
(61) b
(62) d
(63) d
(64) a
(65) d