Chapter No. 1

BASIC CONCEPTS

MCQs

Q.1 Smallest particle of an element which may or may not have independent existence

(a) a molecule (b) an atom
(c) an ion (d) an electron

Q.2 Swedish chemist J. Berzelius determined the

(a) atomic no. (b) atomic volume
(c) atomic mass (d) atomic density

Q.3 The number of atoms present in a molecule determine its

(a) molecularity (b) basicity
(c) acidity (d) atomicity

Q.4 When an electron is added to a unipositive ion we get

(a) anion (b) cation
(c) neutral atom (d) molecule

Q.5 CO+ is an example of:

(a) free radical (b) cationic molecular ion
(c) an ionic molecular ion
(d) stable molecule

Q.6 Relative atomic mass is the mass of an atom of an element as compared to the mass of

(a) oxygen (b) hydrogen
(c) nitrogen (d) carbon

Q.7 Isotopes are the sister atoms of the same element with similar chemical properties and different

(a) atomic number (b) atomic mass
(c) atomic volume (d) atomic structure

Q.8 The instrument which is used to measure the exact masses of different isotopes of an element called

(a) I.R. Spectrophotometer (b) U.V. Spectrophotometer
(c) Mass Spectrometer (d) Colourimeter

Q.9 Mass spectrometer separates different positive isotopic ions on the basis of their

(a) mass value (b) m/e value
(c) e/m value (d) change value

Q.10 ***Simplest formula that gives us information about the simple ratio of atoms in a compound is called***

(a) structural formula (b) molecular formula
(c) empirical formula (d) molar ratio

Q.11 ***Percentage of oxygen in H2O is***

(a) 80% (b) 88.8%
(c) 8.8% (d) 9.8%

Q.12 ***More abundant isotope of an element is one with***

(a) even atomic no. (b) odd atomic no.
(c) Even mass no. (d) odd mass no.

Q.13 ***Large no. of isotopes are known for the elements whose masses are multiple of***

(a) two (b) four
(c) six (d) eight

Q.14 ***When 0.01 kg of CaCO3 is decomposed the CO2 produced occupies a volume at S.T.P.***

(a) 2.2414 dm3 (b) 22.414 dm3
(c) 22414 dm3 (d) 224014 dm3

Q.15 ***The no. of covalent bond in 10gm of NH3 are***

(a) 6.022 x 1023 (b) 1.062 x 1023
(c) 10.62 x 1024 (d) 1.062 x 1024

Q.16 ***No. of molecules present in 10gm of water are***

(a) 3.37 x 1023 (b) 33.7 x 1023
(c) 3.37 x 1024 (d) 3.037 x 1024

Q.17 ***The no. of covalent bonds present in 10gm of water are***

(a) 6.074 x 1023 (b) 6.74 x 1023
(c) 6.074 x 1024 (d) 6.74 x 1024

Q.18 ***The least no. of molecules present in 30 gm of***

(a) N2O (b) NO
(c) NO2 (d) N2O3

Q.19 ***Which of the following has highest percentage of nitrogen***

(a) (NH4)2SO4 (b) NH4H2PO4
(c) (NH4)2HPO4 (d) (NH4)3PO4

Q.20 ***0.1 mole of Na3PO4 completely dissociates in water to produce Na+***

(a) 6.02 x 1022 (b) 6.02 x 1023
(c) 1.806 x 1023 (d) 1.806 x 1022

Q.21 ***Efficiency of chemical reaction can be checked by calculating***

(a) amount of limiting reactant
(b) amount of the reactant in excess
(c) amount of the product formed

(d) amount of the reactant unused

Q.22 A limiting reactant is one

(a) which is present in least amount
(b) which produces minimum no. of moles of product
(c) which produces maximum no. of moles of product
(d) does not effect the amount of product

Q.23 Stoichiometry is the branch of chemistry which deals with the study of quantitative relationship among the various

(a) reactants (b) products
(c) Reactants and products (d) all of above

Q.24 500 cm3 of H2 gas at STP contradictions of hydrogen

(a) 6.02 x 1023 (b) 3.01 x 1022
(c) 2.68 x 1022 (d) 1.34 x 1022

Q.25 Largest number of H+ ions are produced by complete ionization of

(a) 0.01 mole of HCl (b) 0.0050 mole of H2SO4
(c) 0.000334 moles of H3PO4
(d) all above

Q.26 The Avogadro's number is

(a) 6.02 x 1024 (b) 6.02 x 10–24
(c) 6.02 x 10–23 (d) 6.02 x 1023

Q.27 The largest number of H+ are produced by complete ionization of

(a) 0.100 2 moles of HCl (b) 0.051 moles of H2SO4
(c) 0.0334 moles of H3PO4 (d) All of the above

Q.28 A sample of pure matter is

(a) element (b) compound
(c) substance (d) mixture

Q.29 nm stands for

(a) Newton meter (b) Nanometer
(c) Newton square meter (d) none of the above

Q.30 One calorie is equal to

(a) 4.184 J (b) 41.84 J
(c) 0.4184 J (d) 0.04184 J

Q.31 The number of moles of CO2 which contains 8.0 gm of oxygen

(a) 0.25 (b) 0.50
(c) 1.0 (d) 1.50

Q.32 27 grams of Al will react completely with how much mass of O2 to produce Al2O3

(a) 8 gm of oxygen (b) 16 gm of oxygen
(c) 32 gm of oxygen (d) 24 gm of oxygen

Q.33 Mole of SO2 contains

(a) 6.02 x 1023 atoms of oxygen
(b) 18.1 x 1023 molecules of SO2
(c) 6.023 x 1023 atom of sulphur
(d) 4 gram of SO2

Q.34 *The largest number of molecules are presenting*
(a) 3.6 gram of H2O (b) 4.8 gram of C2H5OH
(c) 2.8 gm of CO (d) 5.4 gms of N2O5

Q.35 *The mass of one mole of electron is*
(a) 1.008 mg (b) 0.184 mg
(c) 1.673 mg (d) 0.55 mg

Q.36 *Isotopes differ in*
(a) properties which depend on mass
(b) arrangements of electrons in orbital
(c) chemical properties
(d) the extent to which they may be affected in electromagnetic field

Q.37 *The volume occupied by 1.4 gm of N2 at STP is*
(a) 224 dm3 (b) 22.4 dm3
(c) 1.12 dm3 (d) 112 cm3

Q.38 *Many elements have fractional atomic mass. This is because*
(a) the mass atom is itself fractional
(b) atomic masses are average masses of isobars
(c) atomic masses are averages masses of isotopes
(d) atomic masses are average masses of isotopes proportional to relative abundance

Q.39 *A limiting reactant is one which*
(a) is taken in lesser quantity in grams as compared to other reactants
(b) is taken in lesser quantity in volume as compared to the other
(c) gives the maximum amount of the product which is required
(d) gives the minimum amount of the product under consideration

Q.40 *Isotopes when even atomic masses are a comparatively abundant*
(a) demper's spectrograph is superior to that of Aston's
(b) 0.1 mg of H2O has greater number of molecules then 0.1 mg of CH4
(c) the number of H+ and PO–3 ions are not equal but the number of positive and negative charges
(d) are equal when 100 molecules of H3PO4 are thrown in excess of water

Q.41 ***A molecule having two atoms is called***

(a) monoatomic molecules (b) diatomic molecules

(c) Polyatomic molecules (d) homoatomic molecule

Q.42 ***An ordinary misoscope is used to measure the object of size***

(a) upto 500 nm (b) upto 850 nm

(c) upto 1000 nm (d) upto 1200 nm

Q.43 ***1 atomic masses unit (amu) is equation***

(a) 1.66 x 10–27 kg (b) 1.56 x 10–27 kg

(c) 1.76 x 10–21 kg (d) 1.8 x 10–27 kg

Q.44 ***Nickel has isotopes***

(a) 1 (b) 3

(c) 5 (d) 7

Q.45 ***Cadmium has isotopes***

(a) 3 (b) 5

(c) 7 (d) 9

Q.46 ***The pressure of vapours in the separating isotopes by mass spectrometry is kept at***

(a) 10–6 torr (b) 10–4 torr

(c) 10–3 torr (d) 10–5 torr

Q.47 ***Number of gram atoms in 0.1 gm of Na is***

(a) 0.0043 (b) 0.0403

(c) 0.403 (d) None of these

Q.48 ***Molecule of haemoglobin contains atoms***

(a) 15,000 (b) 12,000

(c) 10,000 (d) 8,000

Q.49 ***Haemoglobin is heavier than a hydrogen atom***

(a) 65,000 (b) 68,000

(c) 62,000 (d) 60,000

Answers

Questions	1	2	3	4	5
Answers	b	C	d	c	b
Questions	6	7	8	9	10
Answers	d	b	c	b	c
Questions	11	12	13	14	15
Answers	b	c	b	a	d
Questions	16	17	18	19	20

Answers	a	b	d	d	c
Questions	21	22	23	24	25
Answers	c	b	d	c	d
Questions	26	27	28	29	30
Answers	d	d	a	b	a
Questions	31	32	33	34	35
Answers	a	d	c	a	d
Questions	36	37	38	39	40
Answers	a	c	d	d	c
Questions	41	42	43	44	
Answers	c	a	a	c	
Questions	45	46	47	48	49
Answers	d	a	a	c	b