CHEMISTRY

BOOKS - TARGET CHEMISTRY (HINGLISH)

SOME BASIC CONCEPTS OF CHEMISTRY

Classical Thinking

1. _____ chemistry deals with the chemisty of elements other than carbon and of their compounds.

A. Organic

B. Physical

C. Inorganic

D. Bio

Answer: C

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2. The branch of chemistry, which deals with the separation, identification and quantitative determination of the compositioni of different substances, is called_____chemistry.

A. organic

B. inorganic

C. analytical

D. bIo

Answer: C

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3. Solar energy can be converted into electricity with the help of. . . . . (Photovoltaic cell/Lithium cells).

A. Daniel

B. lithium ion

C. photovoltaic

D. nickel cadmium

Answer: C

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4. In computers_____ chips are used as microprocessors

A. carbon

B. phosphorus

C. titanium

D. silicon

Answer: D

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5. Which of the following is NOT a mixture?

A. Iodized table salt

B. Gasoline

C. Liquefied Petroleum Gas (L.P.G)

D. Distilled water

Answer: D

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6. Which of the following is NOT a homogeneous mixture?

A. Ethanol + water

B. Oxygen gas + nitrogen gas

C. Phenol + water

D. Acetic acid + water

Answer: C

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7. The phlogiston theory was suggested for

A. neutralisation

B. oxidation

C. reduction

D. combustion

Answer: D

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8. Substances, which CANNOT be decomposed intio two or more different substances by chemical

process, are called _____

A. alloys

B. molecules

C. elements

D. compounds

Answer: C

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9. The arbitrarily decided and universaly accepted standards are called_____

A. fundamentals

B. units

C. measures

D. symbols

Answer: B

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10. There are _____ fundamental SI units.

A. 3

B. 5

C. 6

D. 7

Answer: D

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11. SI unit of velocity is

(i) m/s

(ii) m / s^2

(iii) m

(iv) s

A. kms^{-1}

B. $kmhr^{-1}$

C. ms^{-2}

D. ms^{-1}

Answer: D

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12. The unit of electrochemical equivalent is

A. $kgms^{-1}$

B. kgm^2s^{-1}

C. kgC^{-1}

D. $kgm^{-1}s^{-2}$

Answer: C

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13. The prefix pico stands for_____

A. 10^{-12}

B. 10^{-15}

C. 10^{12}

D. 10^{-9}

Answer: A

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14. After a chemical reaction the total mass of reactant and products

A. always increases

B. always decreases

C. does not change

D. either increases or decreases

Answer: C

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15. The sum of the masses of reactants and products is equal in any physical or chemical reaction. This is in accordance with law of _____

A. multiple proportion

B. definite composition

C. conservation of mass

D. reciprocal proportion

Answer: C

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16. If law of conservation of mass was to hold true, then $20 \cdot 8g$ of $BaCl_2$ on reaction with $9 \cdot 8g$ of H_2SO_4 will produce $7 \cdot 3g$ of HCl and $BaSO_4$ equal to

A. 11.65g

B. 23.3 g

C. 25.5

D. 30.6 g

Answer: B

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17. Pure water can be obtained from various sources, but it always contains hydrogen and oxygen, combined in a ratio of 1:8 by weight. This is an example of _____

A. law of conservation of mass

B. Avogadro's law

C. law of define composition

D. Gay lussac's law

Answer: C

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18. Two containers of the same size are filled separately with H_2 gas and CO_2 gas. Both the containers under the T and P will contain the same_____

A. number of atoms

B. weight of gas

C. number of molecules

D. number of electrons

Answer: C

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19. In SO_2 and SO_3, the ratio of the masses of oxygen that combine with a fixed mass of sulphur is 2:3. This is an example of the law of _____.

A. constant proportion

B. multiple proportion

C. reciprocal proportion

D. conservation of mass

Answer: B

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20. Which of the following reactions has the ratio of volumes of reacting gases and the product as 1:2:2?

A. $2CO_{(g)} + O_{2(g)} \rightarrow 2CO_{2(g)}$

B. $O_{2(g)} + 2H_{2(g)} \rightarrow 2H_{20O_{(g)}}$

C. $H_{2(g)} + F_{2(g)} \rightarrow 2HF_{(g)}$

D. $N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$

Answer: B

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21. The volume of oxygen required for complete combustion of 0.25 cm^3 of CH_4 at S.T.P. is _____ cm^3

A. 0.25

B. 0.5

C. 0.75

D. 1

Answer: B

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22. What is the smallest particle of matter according to Dalton?

A. atoms

B. molecules

C. ions

D. elements

Answer: A

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23. Atoms have a mass of the order_____

A. $10^{-26}kg$

B. $10^{-15}kg$

C. $10^{-26}g$

D. $10^{-15}g$

Answer: A

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24. The radius of the atom is of the order of

A. $10^{-26}m$

B. $10^{-15}\mu m$

C. $10^{-15}mm$

D. $10^{-15}m$

Answer: D

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25. A/an_____ is an aggregate of two or more atoms in definite composition, which are held together by chemical bonds.

A. ion

B. molecule

C. compound

D. mixture

Answer: B

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26. Which symbol replaces the unit of atomic mass, amu ?

A. u

B. mol

C. g

D. kg

Answer: A

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27. Mole is the SI unit of _____

A. volume

B. pressure

C. amount of substance

D. density

Answer: C

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28. 1 amu is equal to

A. $\frac{1}{12}$ of C-12

B. $\frac{1}{14}$ of O-16

C. 1 g of H_2

D. $1.66 \times 10^{-23} kg$

Answer: A

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29. _____ is the sum of the atomic masso of all the atoms as given in the molecular formula of the

substance.

A. Molecular mass

B. Atomic weight

C. Percentage weight

D. Percentage volume

Answer: A

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30. $N_A =$ _____ atoms mol^{-1}

A. 6.021×10^{21}

B. 6.024×10^{24}

C. 6.051×10^{15}

D. 6.022×10^{23}

Answer: D

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31. One _____is the collection of 6.022×10^{23} atoms/ molecules/ions

A. kg

B. Gasoline

C. mole

D. cm

Answer: C

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32. Avogadro's number is _____

A. number of atoms in one gram of element

B. number of millilitres which one mole of a gaseous substance occupies at N.T.P.

C. number of molecules present inone gram molar mass of a substance

D. number of elements in one gram of compounds

Answer: C

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33. "Equal volume of gases under similar conditions of pressure and temperature possess equal number of molecules". This law is given by

A. Boyle's law

B. Charles' law

C. Avogadro's law

D. Gay Lussac's law

Answer: C

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34. Volume occupied by 1 g molecular weight of any gas is called_

A. gram molecular volume

B. gram atomic volume

C. gram molecule weight

D. gram atomic weight

Answer: A

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35. The number of atoms present in a molecule of a substance is called its_____

A. atomicity

B. volume

C. density

D. mass

Answer: A

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36. How many molecules are present in one in one gram of hydrogen?

A. 6×10^{23}

B. 3×10^{23}

C. 2.5×10^{23}

D. 1.5×10^{23}

Answer: B

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37. One mole of CO_2 contains:

A. 6.022×10^{23} atoms of C

B. 6.022×10^{23} atoms of O

C. 18.1×10^{23} molecules of CO_2

D. 3g atoms of CO_2

Answer: A

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38. Onemole of H_2O corresponds to _____

A. 22.4 litre at 1 atm and $25^{\circ}C$

B. 6.022×10^{23} atoms of hydrogen and 6.022×10^{23} atoms of oxygen

C. 18 g of H_2O

D. 1 g of H_2O

Answer: C

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39. The gram molecule of benzene is equal to _____ g C_6H_6

A. 70

B. 72

C. 10

D. 78

Answer: D

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40. 1 atom of an element weighs $1.792 \times 10^{-22} g$. The atomic mass of the element is

A. 1.192

B. 17.92

C. 64

D. 108

Answer: D

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41. What is the mass of 0.5 mole of ozone molecule?

A. 8 g

B. 16 g

C. 24 g

D. 48 g

Answer: C

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42. The number of molecules is 16 g of oxygen gas is

A. 6.022×10^{23}

B. 3.011×10^{23}

C. 3.011×10^{22}

D. 1.5×10^{23}

Answer: B

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43. Which of the following weighs the least?

A. 2.0 gram mole of CO_2

B. 0.1 mole of sucrose $(C_{12}H_{22}O_{11})$

C. 1 gram atom of calcium

D. 1.5 mole of water

Answer: D

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44. Which one of the following parts of gases contains the same number of molecules?

A. 16 g of O_2 and 14 g of N_2

B. 8 g of O_2 and 22 g of CO_2

C. 28 g of N_2 and 22 g of CO_2

D. 32 g of O_2 and 32 g of N_2

Answer: A

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45. One mole of oxygen gas weighs_____

A. 1 g

B. 8 g of O_2 and 22 g of CO_2

C. 32 g

D. $6.022 \times 10^{23} g$

Answer: C

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46. Under similar conditions same mass of oxygen and nitrogen is taken. The ratio of their volumes will be _____

A. $7:8$

B. $3:5$

C. $6:5$

D. $9:2$

Answer: A

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47. The mass percentage of each consituent element paresent in 100 g of a compound is called its _____.

A. molecular composition

B. atomic composition

C. presentage composition

D. mass composition

Answer: C

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48. _____ of a compound is the chemical formula indicating the relative number of atoms in the simplest ratio.

A. Empirical formula

B. Molecular formula

C. Empirical mass

D. Molecular mass

Answer: A

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49. The percentage composition composition of carbon in urea, $\left[CO(NH_2)_2\right]$ is

A. 0.2

B. 0.4

C. 0.5

D. 0.8

Answer: A

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50. What is the % of H_2O in $Fe(CNS)_3.3H_2O$?

A. 19

B. 25

C. 30

D. 45

Answer: A

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51. The percentage of oxygen in NaOH is

A. 8

B. 10

C. 40

D. 60

Answer: C

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52. A compound made of two elements A and B is found to contains 25% A (atomic mass 12.5) and 75%

B (atomic mass 37.5). The simplest formula of the the compound is :-

A. AB

B. AB_2

C. AB_3

D. A_3B

Answer: A

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53. _____ indicates the actual number of constituents atoms in a molecule

A. Empirical formula

B. Molecular formula

C. Empirical mass

D. Molecular mass

Answer: B

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54. Which of the following has same moleculer formula and empirical formuls?

A. CO_2

B. $C_6H_{12}O_6$

C. C_2H_2

D. $C_2H_2O_4$

Answer: A

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55. Empirical formula of glucose is _____

A. $C_6H_{12}O_6$

B. $C_6H_{11}O_6$

C. CHO

D. CH_2O

Answer: D

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56. The starting material that takes part in chemical reaction is called____

A. product

B. reactant

C. catalyst

D. starter

Answer: B

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57. _____ reactant is the reactant that reacts completely but limits further progress of the reaction.

A. oxidizing

B. reducing

C. limiting

D. excess

Answer: C

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58. _____ reactant is the reactant that is taken in excess than the limiting reactant.

A. oxidizing

B. reducing

C. limiting

D. excess

Answer: D

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59. Which of the following relations for expressing volume of a sample of NOT correct?

A. $1L = 10^3 mL$

B. $1dm^3 = 1L$

C. $1L = 10^3 m^3$

D. $1L = 10^3 cm^3$

Answer: C

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60. Which out of the following is NOT a homogeneous mixture?

A. solution of glucose is water

B. solution of salt is water.

C. mixture of glucose solution and salt solution

D. mixture of oil and water

Answer: D

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61. The molecular mass of hydroge peroxide is 34. What is the unit of molecular mass?

A. gram molecular volume

B. mol

C. $g\text{mol}^{-1}$

D. $\text{mol}g^{-1}$

Answer: C

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Critical Thinking

1. Aziodothymidine drug is used for treating_____patients.

A. diabetes

B. AIDS

C. jaundice

D. tuberculosis

Answer: B

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2. Which of the following statsement is INCORRECT?

A. Consitituent substances in a mixture retain their separate identities.

B. Composition of a mixture can be varied to any extent.

C. Mixture of liquids are example of homogeneous mixtures.

D. Mixtures can be separated into pure components by simple physical methods.

Answer: C

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3. The revised metric system in which units are expressed is _____

A. CGS

B. MKS

C. FPS

D. SI

Answer: D

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4. Find the CORRECT match

Physical quantity	Unit
(A)Density	kgm^3
(B)Acceleration	$kgm^{-1}s^{-2}$
(C)Pressure	kgm^{-3}
(D)Force	$kgms^{-2}$

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5. Find the INCORRECT match

Prefix	Magnitude
(A)Giga	10^9
(B)Mega	10^3
(C)Nano	10^{-9}
(D)Micro	10^{-6}

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6. Hydrogen and oxygen combine to form H_2O_2 and H_2O containing 5.93% and 11.2% hydrogen respectively. The data illustrates

A. law of conservation of mass

B. law of defininte composition

C. law of reciprocal proportion

D. law of multiple proportion

Answer: D

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7. Two elements A and B combine to form a compound in which a g of A combines with b_1 and b_2 g of B respectively. According to law of multiple proportion_____.

A. $b_1 = b_2$

B. b_1 and b_2 bear a simple whole number ratio

C. a is always equla to b_1

D. no relation exists between b_1 and b_2

Answer: B

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8. Two samples of lead oxide were separately reduced to metallic lead by heating in a current of hydrogen. The weight of lead from one oxide was half the weight of lead obtained from the other oxide. The data illustrates

A. law of reciprocal proporties

B. law of constant proportions

C. law of multiple proportions

D. law of equivalent proportions

Answer: C

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9. The law of multiple proportion is illustrated by

A. carbon monoxide and carbon dioxide

B. potassium bromide and potasisum

C. ordinary water and heavy water (D_2O)

D. calcium hydroxide and barium hydroxide

Answer: A

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10. How many litres of ammonia will be formed when 2L of N_2 and 2L of H_2 are allowed to react?

A. 0.665

B. 1

C. 1.33

D. 4

Answer: C

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11. Which of the following statements is FALSE according to Dalton's atomic theory?

A. A chemical reaction involves only the separation, combination or rearrangement of integer number of atoms.

B. Law of conservation of mass can be explained by assuming that total number of atoms in the reactants and products remains same.

C. During chemical reactions, atoms are neighte created nor destroyed.

D. Atoms of the same element have different properties.

Answer: D

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12. Which of the following statements is INCORRECT?

A. Atoms mayy or may not have free existence

B. A molecule may contain atoms of same elements or different elements.

C. A molecule can be divided into its consitutents atoms by simple methods.

D. The properties of constituent atoms and the compounds formed from them are completely different.

Answer: C

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13. Isotopes are the atoms of the same element having_____

A. different number of protons

B. different number of electrons

C. different number of neutons

D. same number of neutrons

Answer: C

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14. Which of the following indicates natural abundance of neon-20 isotope?

A. 90.92u

B. 0.9092

C. 90.92 $gm\text{mol}^{-1}$

D. $90.92 \times 0.012kg$ of $.^{12}C$

Answer: B

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15. In chemical scale, the relative mass of the isotopic mixture of oxygen atoms $\left(O^{16}, O^{17}, O^{18}\right)$ is assumed to be equal to

A. 15

B. 16

C. 17

D. 18

Answer: B

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16. The number of moles of sodium oxide in 620 g of it is

A. 1 mol

B. 10 moles

C. 18 moles

D. 100 moles

Answer: B

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17. The number of water molecules in 1L of water is :

A. 18

B. 18×1000

C. N_A

D. $55.55N_A$

Answer: D

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18. 1 mol of CH_4 contains

A. 6.02×10^{23} atoms of H

B. 4 g atoms of H

C. 1.81×10^{23} molecules of CH_4

D. 3.0 g of carbon

Answer: B

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19. Mass of 1 atom of Hydrogen is -

A. 1g

B. 0.5 g

C. $1.6 \times 10^{-24} g$

D. $3.2 \times 10^{-24} g$

Answer: C

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20. $1gm - a \rightarrow m$ of nitrogen may represent:

A. $6.02 \times 10^{23} N_2$ molecules

B. 22.4L of N_2 at N.T.P

C. 1.2 L of N_2 at N.T.P

D. 28 g of nitrogen

Answer: C

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21. The number of molecules in $22.4dm^3$ of nitrogen gas at STP is _____

A. 6.022×10^{20}

B. 6.022×10^{23}

C. 22.4×10^{20}

D. 22.4×10^{23}

Answer: B

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22. How many moles of electrons weigh one kilogram? (Mass of electron $= 9.108 \times 10^{-31}$ kg, Avogadro's number $= 6.023 \times 10^{23}$)

A. 6.022×10^{23}

B. $\frac{1}{9.108} \times 10^{31}$

C. $\frac{6.022}{9.108} \times 10^{54}$

D. $\frac{1}{9.108 \times 6.022} \times 10^{8}$

Answer: D

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23. Which of the following has maximum number of atoms?

A. 18 g of H_2O

B. 16 g O_2

C. 4.4 g of CO_2

D. 16 g of CH_4

Answer: D

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24. The number of sulphur atoms present in 0.2 moles of S_8 molecules is

A. 4.82×10^{23}

B. 9.63×10^{22}

C. 9.63×10^{23}

D. 1.20×10^{23}

Answer: C

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25. What will be the volume of CO_2 at NTP obtained on heating 10 grams of (90% pure) limestone?

A. 22.4 litre

B. 2.016 litre

C. 2.24 litre

D. 20.16 litre

Answer: B

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26. If two compounds have the same empirical formula but different molecular formulae they must have

A. different perentage composition

B. different molecular weights

C. same viscosity

D. same vapour density

Answer: B

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27. The pair of species having same percentage of carbon is:

A. CH_3COOH and $C_6H_{12}O_6$

B. CH_3COOH and C_2H_5OH

C. $HCOOCH_3$ and $C_{12}H_{22}O_{11}$

D. $C_6H_{12}O_6$ and $C_{12}H_{22}O_{11}$

Answer: A

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28. The percentage of nitrogen in urea is about:

A. 0.46

B. 0.85

C. 0.18

D. 0.28

Answer: A

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29. Two elements X (Atomic mass 75) and Y (Atomic mass 12) combine to give a compound having 75.8% X. The empirical formula of the compound is

A. XY

B. XY_2

C. X_2Y_2

D. X_2Y_3

Answer: B

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30. The empirical formula of a compound is CH. Its molecular weight is 78. The molecular formula the compound will be:

A. C_2H_4

B. C_2H_2

C. C_6H_6

D. C_4H_4

Answer: C

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31. The empirical formula of a compound is CH_2O. 0.0835 moles of the compound contains $1.0g$ of hydrogen Molecular formula of the compound is

A. $C_6H_{12}O_6$

B. $C_5H_{10}O_5$

C. $C_4H_8O_4$

D. $C_3H_6O_3$

Answer: A

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32. Calculate the number of moles of methane required to produce 33 g of carbon dioxide gas on its complete combustion.

A. 0.15 moles

B. 0.50 moles

C. 0.75 moles

D. 0.95 moles

Answer: C

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33. $27g$ of Al will react completely with..... g of O_2

A. 24 g

B. 8 g

C. 40 g

D. 10 g

Answer: A

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34. The volume of ammonia obtained by the combination of 10 mL of N_2 and 30 mL H_2 is _____.

A. 20mL

B. 40mL

C. 30mL

D. 10mL

Answer: A

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35. What mass of CaO will be obtained by heating 3 mole of $CaCO_3$? [Atomic mass of $Ca = 40$]

A. 150g

B. 168g

C. 16.8g

D. 15g

Answer: B

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36. 3.0 g of H_2 react with 29.0 g O_2 to yield H_2O

(i) What is the limiting reactant ?

(ii) Calculate the maximum amount of water that can be formed

(iii) Calculate the amount of one of the reactants which remains unreacted.

A. $H_2, 1.5$

B. $O_2, 1.5$

C. $H_2, 3.0$

D. $O_2, 0.91$

Answer: A

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37. Which of the following is a compound?

A. Diamond

B. Charcoal

C. Baking soda

D. 22 Carat Gold

Answer: C

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38. Two elements A and B combine chemically to from compounds combining with a fixed mass of A in I, II and III is $1:3:5$, if 32 parts by mass of A combine with 84 parts by mass of B in II, then III, 16 parts of A will combine with..... by mass of B.

A. 14 parts by mass of Y

B. 42 parts by mass of Y

C. 70 parts by mass of Y

D. 83 parts by mass of Y

Answer: C

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39. Which of the following is the valueof amu?

A. $1.57 \times 10^{-24} kg$

B. $1.66 \times 10^{-24} kg$

C. $1.99 \times 10^{-23} kg$

D. $1.66 \times 10^{-27} kg$

Answer: D

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Competitive Thinking

1. The SI unit of density is:

A. gcm^{-3}

B. gm^{-3}

C. kgm^{-3}

D. kgm^{-3}

Answer: C

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2. A sample of pure carbon dioxide, irrespective of its source contains 27.27% carbon and 72.73% oxygen. The data support

A. law of definite composition

B. law of conservation of mass

C. law of reciprocal proportion

D. law of multiple proportion

Answer: A

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3. Which of the following properties of an element is a whole number ?

A. Atomic weight

B. Atomic volume

C. Atomic number

D. All of these

Answer: C

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4. The weight of a molecule of the compound $C_{60}H_{122}$ is

A. $1.4 \times 10^{-21} g$

B. $1.09 \times 10^{-21} g$

C. $5.025 \times 10^{23} g$

D. $16.023 \times 10^{23} g$

Answer: A

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5. Boron has two stable isotopes, $.^{10} B(19\,\%)$ and $.^{11} B(81\,\%)$. The atomic mass that should appear for boron in the periodic table is

A. 10

B. 10.2

C. 10.8

D. 11.2

Answer: C

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6. An element X has the following isotopic composition :

$.^{200}X : 90\%, \quad .^{199}X : 8.0\%, \quad .^{202}X : 2.0\%$

The weighted average atomic mass of the naturally occurring element X is closest to :

A. 200 amu

B. 210 amu

C. 202 amu

D. 199 amu

Answer: A

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7. The number of atoms in 4.25g of NH_3 is approximately

A. 1×10^{23}

B. 2×10^{23}

C. 4×10^{23}

D. 6×10^{23}

Answer: D

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8. Which amount of dioxygen (in grams) contains 1.8×10^{22} molecules ?

A. 0.096

B. 0.96

C. 9.6

D. 96

Answer: B

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9. The number of oxygen atoms in 4.4 g of CO_2 is approximately

A. 1.2×10^{23}

B. 6×10^{22}

C. 6×10^{23}

D. 12×10^{23}

Answer: A

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10. The volume occupied by 4.4 g of CO_2 at STP is

A. 0.1L

B. 0.224OL

C. 2.24L

D. 22.4L

Answer: C

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11. The numbr of atoms in 0.1 mole of a triatomic gas is _____.$\left(N_A = 6.02 \times 10^{23} \text{mol}^{-1}\right)$

A. 1.800×10^{22}

B. 6.026×10^{22}

C. 1.806×10^{23}

D. 3.600×10^{23}

Answer: C

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12. The system thet contains the maximum number of atoms is

A. 4.25 of NH_3

B. 8 g of O_2

C. 2g of H_2

D. 4g of He

Answer: C

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13. The number of water molecules is maximum in

A. 18 gram of water

B. 18 moles of water

C. 18 molecules of water

D. 1.8 gram of water

Answer: B

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14. The number of moles of $BaCO_3$ which contains 1.5 moles of oxygen atoms is

A. 0.5

B. 1

C. 3

D. 60.2×10^{23}

Answer: A

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15. The number of moles of oxygen in 1 L of air containing 21% oxygen by volume, in standard conditions, is

A. 0.0093 mol

B. 0.186 mol

C. 0.21 mol

D. 2.10 mol

Answer: A

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16. If 1 ml of water contains 20 drops. Then no. of molecules in a drop of water is

A. 6.02×10^{23} atoms of H

B. 1.376×10^{26}

C. 1344×10^{18}

D. 4.346×10^{20}

Answer: C

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17. How many moles of lead (II) chloride will be formed from a reaction between 6.5g PbO and 3.2g HCl?

A. 0.011

B. 0.029

C. 0.333

D. 0.044

Answer: B

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18. Percentage of Se in peroxidase anhydrase enzyme is $0.5\,\%$ by weight (at. Wt. $= 78.4$), then minimum molecular weight of peroxidase anhydrase enzyme is:

A. 1.568×10^4

B. 1.568×10^3

C. 15.68

D. 3.136×10^4

Answer: A

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19. The empirical formula of an acid is CH_2O_2, the probable molecular formula of acid may be

A. CH_2O

B. CH_2O_2

C. $C_2H_4O_2$

D. $CH_3H_6O_4$

Answer: B

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20. A compound $(80g)$ on analysis gave $C = 24g, H = 4g, O = 32g$. Its empirical formula is

A. $C_2H_2O_2$

B. C_2H_2O

C. CH_2O_2

D. CH_2O

Answer: D

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21. An organic compound contains carbon, hydrogen and oxygen. Its elemental analysis gave$C, 38.71\%$ and $H, 9.67\%$. The empirical formula of the compound would be :

A. CHO

B. CH_4O

C. CH_3O

D. CH_2O

Answer: C

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22. During electrolysis of water, the volume of oxygen liberate is $2.24dm^3$. The volume of hydrogen liberated, under same conditions will be

A. $0.56dm^3$

B. $1.12dm^3$

C. $2.24dm^3$

D. $4.48dm^3$

Answer: D

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23. Assuming fully decomposed, the volume of CO_2 released at STP on heating 9.85 g of $BaCO_3$ (Atomic mass of Ba=137) will be

A. 0.84 L

B. 2.24 L

C. 4.06 L

D. 1.12 L

Answer: D

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24. what volume of hydrogen gas , at 273 K and 1 atm pressure will be consumed in obtaining 21.6 g of elemental boron (atomic mass=10.8) from the reduction of boron trichloride by hydrogen ?

A. 22.4 L

B. 89.6L

C. 67.2 L

D. 44.8 L

Answer: C

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25. What volume of oxygen gas (O_2) measured at $0^\circ C$ and 1 atm is needed to burn completely $1L$ of propane gas (C_3H_8) measured under the same condition?

A. 5L

B. 10L

C. 7L

D. 6L

Answer: A

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26. In the reaction:

$$2Al_{(s)} + 6HCl_{(aq.)} \rightarrow 2Al^{3+}_{(aq.)} + 6Cl^{-}_{(aq.)} + 3H_{2(g)}$$

A. 6L $HCl_{(aq)}$ is consumed for every 3L $H_{2(g)}$ produced

B. 33.6 L $H_{2(g)}$ is produced regardless of temprature and pressure for every mole Al that reacts.

C. 67.2 L$H_{2(g)}$ at STP is produced for every mole Al that reacts.

D. 11.2 $H_{2(g)}$ at STP is produced for every mole $HCl_{(aq)}$ consumed.

Answer: D

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27. How many moles of magnesium phosphate, $Mg_3(PO_4\_(2)$ will contain 0.25 mole of oxygen atoms?

A. 0.02

B. 3.125×10^{-2}

C. 1.25×10^{-2}

D. 2.5×10^{-2}

Answer: B

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28. 1 gram of carbonate (M_2CO_3) on treatment with excess HCl produces 0.1186 mole of CO_2. The molar mass of $M_2CO_3 \text{in g mol}^{-1}$

A. 11.86

B. 84.3

C. 118.6

D. 1186

Answer: B

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29. 10 g hydrogen is reacted with 64 g of oxygen. The amount of water formed will be (in moles)

A. 3

B. 4

C. 1

D. 2

Answer: B

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30. 1.0 g of magnesium is burnt with 0.56 g O_2 in a closed vessel. Which reactant is left in excess and how much?

A. Mg, 0.16

B. O_2,0.16g

C. Mg,0.44g

D. O_2, 0.28 g

Answer: A

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31. The ratio of masses of oxygen and nitrogen in a particular gaseous mixture $1:4$. The ratio of number of their molecule is :

A. $1:4$

B. $7:32$

C. $1:8$

D. $3:16$

Answer: B

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32. The most abundant elements by mass in the body of a healthy human adult are: Oxygen (61.4%), Carbon (22.9%), Hydrogen (10.0%), and Nitrogen (2.6%). The weight which a 75 kg person would gain if all $.^{1}H$ atoms are replaced by $.^{2}H$ atoms is:

A. 7.5 kg

B. 10 kg

C. 15 kg

D. 37.5 kg

Answer: A

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33. 20.0 g of magnesium carbonate sample decomposes on heating to give carbon dioxide and 8.0 g of magnesium oxide. What will be the percentage purity of magnesium carbonate in the sample?

A. 60

B. 84

C. 75

D. 96

Answer: B

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34. Haemoglobin contains 0.33% of iron by weight. The molecular weight of heamoglobin is approximately 67200. The number of iron atoms (At. Wt. of Fe=56) present in one molecule of haemoglobin is

A. 1

B. 2

C. 4

D. 6

Answer: C

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35. If Avogadro number N_A is changed form $6.022 \times 10^{23} \text{mol}^{-1}$ to $6.022 \times 10^{20} \text{mol}^{-1}$, this would change_____

A. the ratio of chemical species of each other in a balanced equation

B. the ratio of elements to each other in a compound

C. the definition of mass in units of grams

D. the mass of one mole of carbon

Answer: D

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36. Suppose the elements X and Y combine to form two compounds of 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 , what are tha atomic masses of X and Y ?

A. 30,20

B. 40m30

C. 6,40

D. 20,30

Answer: B

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37. Which symbol replaces the unit of atomic mass, amu ?

A. u

B. A

C. M

D. n

Answer: A

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Evaluation Test

1. Weight of $112ml$ of oxygen at NTP on liquefaction would be

A. 0.32 g

B. 0.64 g

C. 0.16 g

D. 0.96 g

Answer: C

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2. The largest number of molecules in

A. 54 g of nitrogen tetroxide

B. 28 g of carbon dioxide

C. 36 of water

D. 46 g of ethyl alcohol

Answer: C

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3. The mass of a molecule of water

A. $3 \times 10^{-25} kg$

B. $3 \times 10^{-25} kg$

C. $1.5 \times 10^{-26} kg$

D. $2.5 \times 10^{-26} kg$

Answer: A

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4. The modern atomic weight scale is based on

A. $._{}^{12} C$

B. $._{}^{16} O$

C. . $^{1}H1$

D. . ^{13}C

Answer: A

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5. Which of the following gives CORRECT order of increasing masses?

(Atomie mass: $N = 14, O = 16, Cu = 63$)

I. 1 molecule of oxygen

II. 1 atom of nitrogen

III> 1×10^{-10} g molecular weigt of oxygen

IV. 1×10^{-10} g atomic weight of copper

A. IIltIltIIltIV

B. IVltIIIltIIltI

C. IIltIIIltIltIV

D. IIIltIVltIltII

Answer: A

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6. What is the weight of oxygen required for the complete combustion of 2.8 kg of ethylene?

A. 2.8 kg

B. 6.4 kg

C. 9.6 kg

D. 96 kg

Answer: C

Watch Video Solution

7. 100 mL of `PH_(3)` on decomposition produced phosphorus and hydrogen. The change in volume is :-

A. 50 mL increase

B. 50 mL decrease

C. 90 mL decreae

D. 150 mL increase

Answer: A

8. The molecular weight of a gas is 45. Its density at STP is

A. 22.4

B. 11.2

C. 5.7

D. 2

Answer: D

9. 1.4 moles of phosphorus trichloride are present in a sample. How many atoms are there in the sample?

A. 4

B. 5.6

C. 8.431×10^{23}

D. 3.372×10^{24}

Answer: D

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10. In the reaction, $4NH_3(g) + 5O_2(g) \rightarrow 4NO(g) + 6H_2O(g)$, when 1 mole of ammonia and 1 mole of O_2 are made to react to completion

A. 1.0 mole of H_2O is produced

B. 1.0 mole of NO will be produced

C. all the oxygen will be consumed

D. all the ammonia will be consumed

Answer: C

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11. What weight of SO_2 can be made by burning sulphur in 5.0 moles of oxygen?

A. 640 grams

B. 160 grams

C. 80 grams

D. 320 grmas

Answer: D

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12. In INCORRECT statement for 14 g of CO is _____.

A. it occupies 2.24 L at NTP

B. it corresponds to $\frac{1}{2}$ mole of CO

C. it corresponds to half mole of N_2

D. it corresponds to 3.01×10^{23} molecules of CO

Answer: A

Watch Video Solution

13. The number of gram atom of oxygen in 6.02×10^{24} CO molecules is _____

A. 1

B. 0.5

C. 5

D. 10

Answer: D

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14. Empricial formula of a hydrocarbon containing 80 % carbon and 20% hydrogen is

A. CH_2

B. CH_3

C. CH_4

D. C_2H_3

Answer: B

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15. Which of the following drug ailment pairs is CORRECT?

A. Tamiflu-cancer

B. Cisplatin-AIDS

C. L-dopa-Parkinosons disease

D. Taxol -diabetes

Answer: C

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16. The magnitude of femto is _____

A. 10^9

B. 10^{-15}

C. 10^{-9}

D. 10^{-12}

Answer: B

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17. The number of moles in y g of helium gas is equal to _____

A. $y \times 4$

B. $y/2$

C. $y/4$

D. $y \times 2$

Answer: C

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18. Which of the following is NOT a fundamental SI unit?

A. Meter

B. Candela

C. Ampere

D. Gram

Answer: D

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19. For a reaction $A + 3B \rightarrow C + D$ the amount of C formed by starting the reaction with 5 moles of A and 9 moles of B is _____.

A. 2 moles

B. 3 moles

C. 4 moles

D. 5 moles

Answer: B

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20. In an experiment 2.16 g of copper was dissolved in nitric acid followed by ignition of the nitrate, which gave 2.70 g of copper oxide. In another experiment 1.46 g of copper on heating in a curent of air gave 1.83 g of copper. Oxide.

The percentage of copper in copper oxide is _____ and the abvoe data illustrate the law of _____.

A. 20 % definite proportion

B. 80% multiple proportion

C. 205 multiple proportion

D. 805, definite proportion

Answer: D

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