CHEMISTRY

BOOKS - MCGROW HILL EDUCATION CHEMISTRY (HINGLISH)

MATTER

Elementary Questions

1. Molecules in Solids

A. are free to move about

B. cannot move

C. can slide over each other

D. tend to fly away

Answer: B

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2. Which of the following is not an element?

A. sodium

B. gold

C. soil

D. carbon

Answer: C

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3. Which of the following is the symbol of the metal that occurs in liquid form at ordinary temperature?

A. Na

B. Sn

C. Pb

D. Hg

Answer: D

4. A symbol of an element represents

A. one atom of the element

B. one molecule of the element

C. all the atoms of the element

D. all the molecules of the element

Answer: C

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5. When a solid is heated, it turns directly into

a gas. This process is called

A. sublimation

B. evaporation

C. diffusion

D. condensation

Answer: A

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6. Which of the following is least compressible?

A. gas

B. liquid

C. solid

D. none of these

Answer: C

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7. The various physical properties of a substance may include

A. colour, odour and taste only

B. hardness, solubility and density only

C. melting point and boiling point only

D. all of these

Answer: D

8. Sub atomic particles of atoms are

A. protons

B. electrons

C. neutrons

D. all of these

Answer: D

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9. The state in which molecular attractions are very strong is

A. solid

B. liquid

C. gas

D. none of these

Answer: A

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10. Intermolecular space is the least in

A. water

B. steam

C. ice

D. all of them

Answer: C

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11. Which of the following is not a mixture?

A. air

B. sea water

C. ice

D. soil

Answer: C

12. The process of converting gas into liquid on cooling is called

A. evaporation

B. condensation

C. diffusion

D. sublimation

Answer: B

13. An atom is

A. the smallest particle of matter known

B. the smallest particle of a gas

C. the smallest indivisible particle of an element that can take part in a chemical reaction

D. radioactive emission

Answer: C

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14. Air is regarded as a mixture because

  A. its pressure may vary

  B. its temperature may change

  C. its volume changes under different

    conditions

D. its composition may vary

Answer: D

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15. Which of the following properties is different for solids, liquids and gases?

A. movement of molecules

B. particle size of the substance

C. mass of the substance

D. energy exchanges

Answer: A

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16. Which of the following is an example of a mixture?

A. Sugar

B. Brass

C. CO_2

D. NO_2

Answer: B

17. Which of the following is not a chemical change?

A. rusting of iron

B. converting water into steam

C. making curd from milk

D. heating coal

18. A chemical equation is a means

   A. of representing chemical and physical

     properties of reactant molecules

   B. of acquiring instructions for the

     preparation of a compound

C. of representing a chemical change by means of symbols and formulas

D. of showing the kind of elements present in a mixture

Answer: C

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19. In a balanced chemical equation, the reactant side and the product side have the same number of

A. atoms

B. molecules

C. ions

D. electrons

Answer: A

20. In the chemical equation, $2Mg + O_2 \rightarrow 2MgO$, O_2 represents

A. atoms of oxygen joined together in a

   molecule

B. molecules of oxygen

C. grams of oxygen

D. moles of oxygen

Answer: A

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21. The chemical formula of a compound does not represent

    A. the total number of atoms in a molecule of the compound

    B. the number of various atoms in one molecule of the compound

    C. the state of the molecules of the compound

D. the composition of a molecule of the

compound

Answer: C

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22. Which of the following statements about a

balanced chemical equation is true?

A. mass is conserved

B. atoms are conserved

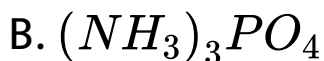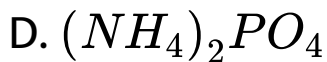C. mass as well as atoms are conserved
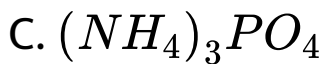
D. molecules are conserved

Answer: C

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23. The correct formula for ammonium phosphate is

A. $N_2H_6PO_4$

B. $(NH_3)_3PO_4$
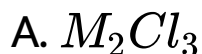
C. $(NH_4)_3PO_4$

D. $(NH_4)_2PO_4$

Answer: C

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24. A metal sulphate has the formula MSO . A chloride of the same metal will have the formula

A. M_2Cl_3

B. M_2Cl

C. MCl_2

D. MCl

Answer: C

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25. The valency of the carbonate radical is

A. 1

B. 2

C. 3

D. 4

Answer: B

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26. The formula for potassium permanganate

is

A. K_2MnO_4

B. $KMnO_4$

C. $K_2Mn_2O_4$

D. KMn_2O_4
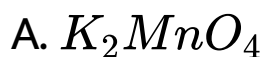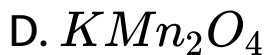
Answer: B

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27. Which of the following is not a compound?

A. sugar

B. common Salt

C. diamond

D. plaster of Paris

Answer: C

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28. Atomic theory was given by

A. John Dalton

B. Neils Bohr

C. E. Rutherford

D. Haber Bosch

Answer: A

29. Smallest possible unit of a compound which has independent existence is

    A. molecule

    B. atom

    C. ion

    D. electron

Answer: A

30. Atomicity of Phosphorous is

A. 1

B. 2

C. 4

D. 6

Answer: C

31. The number of atoms present in a molecule of an element is known as its

    A. valency

    B. atomicity

    C. chemical Formula

    D. symbol

Answer: B

32. 2N represents two

    A. molecules of nitrogen

    B. atoms of nitrogen

    C. compounds of nitrogen

    D. ions of nitrogen

Answer: B

33. Compounds may be formed by

    A. decomposition of other compounds

    B. combination of elements

    C. combination of compounds

    D. all of the above methods

Answer: D

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34. $2AlCl_3$ represents

A. two atoms of Aluminium Chloride

B. two molecules of Aluminium Chloride

C. three atoms of Chlorine

D. two atoms of Aluminium

Answer: B

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35. The symbol of Tin is

A. Sn

B. Pb

C. An

D. Br

Answer: A

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36. Which of the following do not show the properties of the constituents?

A. water

B. air

C. sugar solution

D. none of these

Answer: A

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37. Which of the following is not a physical property?

   A. specific heat

   B. melting point

   C. reaction with other elements or com

   pounds

   D. freezing point

Answer: C

38. 'All matter is composed of very small particles called anu', was first of all suggested by
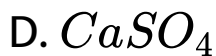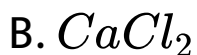
A. John Dalton

B. J.J. Thomson

C. Kanada

D. William J.Crooke

Answer: C

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39. Quicklime is :

A. $Ca(OH)_2$

B. $CaCl_2$

C. CaO

D. $CaSO_4$
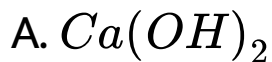
Answer: C

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40. Random Movement of particles was discovered by

    A. Robert Brown

    B. E. Goldstein

    C. James Chadwick

    D. Wilheln Weins

Answer: A

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41. What is the name given to a pure substance with only one kind of atoms?

A. element

B. compound

C. mixture

D. suspension

Answer: A

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42. If we open a bottle of perfume, its smell spreads in the entire room with in a short time due to the process of

A. evaporation

B. sublimation

C. diffusion

D. decantation

Answer: C

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43. In how many forms did the earlier Indian philosophers classify matter?

A. 2

B. 6

C. 7

D. 5

Answer: D

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44. Tap water is

A. compound

B. a mixture

C. an element

D. none of these

Answer: B

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45. Scattering of light by colloidal particles is known as

A. Tyndall effect

B. Brownian motion

C. reflection

D. rectilinear propagation

Answer: A

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46. Who defined element as basic form of matter that cannot be broken down into simpler substances by chemical reactions?

A. Wilhelm Weins

B. William J. Crooke

C. Antonie L. Lavoisier

D. Carl Bosch

Answer: C

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47. Soil is an example of

A. homogeneous Mixture

B. element

C. compound

D. heterogeneous Mixture

Answer: D

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48. Which of the following non-metals is a liquid?

A. bromine

B. carbon

C. sulphur

D. chlorine

Answer: A

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49. Distilled water is

A. a mixture

B. compound

C. element

D. none of these

Answer: B

50. Which out of the following is a homogeneous mixture?

A. milk

B. steel

C. smoke

D. soil

Answer: B

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51. A sample of pure water, irrespective of source, contains 88.89% oxygen and 11.11% hydrogen by mass. The data supports the

A. law of conservation of mass

B. law of constant composition

C. law of multiple proportion

D. law of reciprocal proportion

Answer: B

52. The law of multiple proportion was discovered by

    A. John Dalton

    B. Richter

    C. Joseph Proust

    D. A. Lavoisier

Answer: A

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53. 10.0 g of $CaCO_3$ on heating gave 4.4 g of CO_2 and 5.6g of CaO. The observation is in agreement with the

A. law of constant composition

B. law of multiple proportions

C. law of reciprocal proportion

D. law of conservation of mass

Answer: D

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54. Atoms of the same two elements can combine in different ratios to form different compounds. This law is called the

    A. law of constant composition

    B. law of multiple proportion

    C. law of reciprocal proportion

    D. law of conservation of mass

Answer: B

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55. An atom is

A. the smallest particle of matter known

B. the smallest particle of a gas

C. the smallest indivisible particle of an element that can take part in a chemical change

D. radioactive emission

Answer: C

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56. The number of metals which exist as gas is/are____

A. one

B. two

C. three

D. none

Answer: D

57. An example of a liquid metal is___and that of a liquid non-metal is____

    A. gallium, mercury

    B. mercury, chlorine

    C. mercury, bromine

    D. bromine, sulphur

Answer: C

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58. Brass is an example of a ____

    A. homogeneous compound

    B. homogeneous mixture

    C. heterogeneous mixture

    D. heterogeneous compound

Answer: B

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59. Air is regarded as a mixture because

A. its pressure may vary

B. its temperature may change

C. its volume changes under different conditions

D. its composition may vary

Answer: D

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60. Which of the following is not a noble gas?

A. helium

B. neon

C. argon

D. hydrogen

Answer: D

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61. Which of the following is not a compound?

A. sulphur dioxide

B. chalk

C. lead

D. sulphuric acid

Answer: C

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62. The mass of sodium in 11.7 g of sodium

chloride is

A. 2.3g

B. 4.6g

C. 6.9g

D. 7.1g

Answer: B

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63.

$$CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$$

The mass of calcium chloride formed when 2.5

g calcium carbonate are dissolved in excess of hydrochloric acid is

A. 1.39g

B. 2.78g

C. 5.18g

D. 17.8g

Answer: B

64.

$$CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$$

The volume of CO_2 gas formed when 2.5 g calcium carbonate are dissolved in excess hydrochloric acid at $0°C$ and 1 atm pressure is [1 mole of any gas at $0°C$ and 1 atm pressure occupies 22.414 1 volume]

A. 1.12L

B. 56.0 L

C. 0.28L

D. 0.56L

Answer: D

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65. A compound consists of 47.8% zinc and 52.2% chlorine by mass. The empirical formula is Zn_xCl_y where x and y can have the values
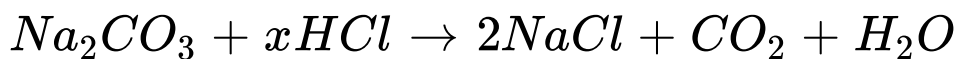
A. 1 and 1

B. 1 and 2

C. 2 and 1

D. 2 and 3 respectively

Answer: B

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66. In the following equations

$$Na_2CO_3 + xHCl \rightarrow 2NaCl + CO_2 + H_2O$$

the value of x is

A. 1

B. 2

C. 3

D. 4

Answer: B

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67. The equation

$$Cu + XHNO_3 \rightarrow Cu(NO_3) + YNO_2 + 2H_2O$$
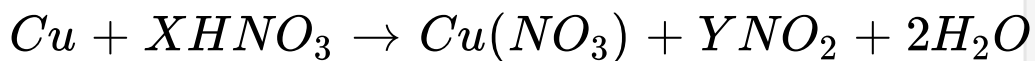
the values of X and Y are

A. 3 and 1

B. 8 and 6

C. 4 and 2

D. 7 and 1 respectively

Answer: C

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68. In the equation

$$NaOH + HNO_3 \rightarrow NaNO_3 + H_2O$$ nitric

acid is acting as

A. an oxidising agent

B. an acid

C. a nitrating agent

D. a dehydrating agent

Answer: B

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69. The percentage of hydrogen in H_2O is

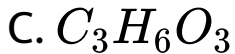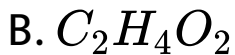A. 44.45

B. 5.55

C. 88.89

D. 11.11

Answer: D

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70. Empirical formula of a compound is CH_2O.

Its molecular mass is 60. The molecular

formula will be

A. CH_2O

B. $C_2H_4O_2$

C. $C_3H_6O_3$

D. none of these

Answer: B

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71. The number of gram-atoms in 8 g of He are

A. 2

B. 1.204×10^{24}

C. 3.10×10^{23}

D. none of these

Answer: A

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72. Which of the following contains the largest number of molecules?

A. 0.2 mole of H_2

B. 8.0 g of H_2

C. 17 g of H_2O

D. 6.0 g of CO_2

Answer: B

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73. Which of the following weighs the most?

A. 10^{23} molecules of H_2

B. 1 mole of H_2O

C. 1 mole of N_2

D. 10^{22} atoms of oxygen

Answer: C

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74. The mass of magnesium oxide formed by burning 1.216 g magnesium in excess oxygen is

A. 0.416 g

B. 1.616 g

C. 2.016 g

D. 2.816 g

Answer: C

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High Order Thinking Questions

1. Homogeneous mixture is formed by mixing

A. phenol and water

B. iron filing and sand

C. silver chloride and water

D. ethanol and water

Answer: D

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2. Atom is the smallest particle of

A. compound

B. Substance

C. Mixture

D. Element

Answer: D

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3. Molecule is the smallest particle of

A. compound

B. Substance

C. Mixture

D. Element

Answer: A

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4. The temperature at absolute zero is

A. $273.15^{\circ} C$

B. $0^{\circ} C$

C. $-373.15^{\circ} C$

D. $-273.15^{\circ} C$

Answer: D

5. Write the $S.\ I.$ unit of temperature.

A. Kelvin

B. $^{\circ}C$

C. $^{\circ}F$

D. both $^{\circ}C$ and K

Answer: A

6. Avogadro's number is the number of particles present in

   A. 1 molecule

   B. 1 atom

   C. 1 mole

   D. 1 kg

Answer: C

7. Atomicity of ammonium phosphate molecule is

A. 6

B. 20

C. 10

D. 15

Answer: B

8. At STP, 2 g of helium gas occupies a volume of

A. 22.4L

B. 11.2L

C. 5.6L

D. 2L

Answer: B

9. The number of molecules in $22.4 cm^3$ of dinitrogen gas at STP is

    A. 6.002×10^{20}

    B. 6.022×10^{23}

    C. 22.4×10^{20}

    D. 22.4×10^{23}

Answer: A

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10. Number of moles of water in 1 L of water with density 1 g/cc are

    A. 55.56

    B. 45.56

    C. 56.55

    D. 5.655

Answer: A

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