CHEMISTRY

BOOKS - MBD CHEMISTRY (ODIA ENGLISH)

BASIC CONCEPT OF THEORY

Question Bank

1. What is the SI unit of pressure ?

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2. What is the SI unit of surface tension ?

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3. What is the SI unit of coefficient of viscosity ?

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4. Which of the following is an element?

A. Hydrogen peroxide

B. Ozone

C. Sand

D. Wood

Answer: B

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5. Name two elements which act as metalloids.

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6. Identify the following as metal or non-metal.(i) Graphite (ii) Lead (iii) Mercury (iv) Sulphur (v) Potassium (vi) Nitrogen (vii) Diamond (vii) Ozone

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7. Identify the following as element , compound or mixture : (i) Brass (ii) Marble (iii) Helium (iv) Honey (v) nitre (vi) Gasoline (vii) Table salt (viii) Air (ix) Caustic soda (x) Gold

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8. Define matter. Briefly discuss its classification.

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9. Define matter. Briefly discuss its classification.

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10. How many significant figures are there in the following numbers ? 43.87

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11. How many significant figures are there in the following numbers ? 12.340

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12. How many significant figures are there in the following numbers ? 0.00306

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13. How many significant figures are there in the following numbers ? 4.51×10^4

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14. Express the following to four significant figures 1.236981

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15. Express the following to four significant figures

45.3712

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16. Express the following to four significant figures

23.4551

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17. Express the following to four significant figures

12.6552

18. Express the following to four significant figures

2.67891×10^3

19. Express the result of the following calculations to the appropriate numbers of significant figures

$25.6 + 2.3123$

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20. Express the result of the following calculations to the appropriate numbers of significant figures $45.546 - 2.32$

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21. Express the result of the following calculations to the appropriate numbers of significant figures 12.4×0.0056

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22. Express the result of the following calculations to the appropriate numbers of significant figures $8.8 + 2.1234$

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23. The mass of a metal piece is 6.234 g and its density is 7.5/gcc. Calculate its volume.

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24. Zinc oxide was produced by the following methods : on heating 1.236g of zinc, produced 1.538 g

zinc oxide.

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25. Zinc oxide was produced by the following methods : 0.936 g zinc was dissolved in nitric acid $Zn(NO_3)_2$ that is formed on strong heating gave 1.165 g zinc oxide. Show that these results support the law of definite proportion.

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26. Lead forms three oxides A,B,C The quantity of oxygen in each of the oxides A B and C is

$7.143\,\%$, $10.345\,\%$ and $13.133\,\%$ respectively. Show that the law of multiple is obeyed.

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27. 0.4 g hydrogen combines with the 3.2 g oxygen to produce water. Hydrogen sulphide is produced by combination of 0.25 g hydrogen and 4.0g sulphur. 1g of sulphur combines with 1 g of oxygen show that the results are in accordance with the law of reciprocal proportion.

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28. State of law of conservation of mass.

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29. State of law of definite proportion.

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30. State the law of multiple proportion.

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31. State the law of reciprocal proportion.

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32. which law is observed by two oxides of carbon i.e. carbon monoxide and carbon dioxide.

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33. Explain the law of multiple proportions by taking suitable example.

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34. State thae law of multiple proportions.

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35. Two oxides of a metal contain 22.2% and30% of oxygen. Show that these figures illustrates the law of multiple of proportion

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36. Define the law of reciprocal proportions.

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37. Water and sulphur dioxide contain 88.89% and 50% oxygen respectively. Hydrogen sulphide gas contains 94.1% sulphur Show that the figures agree with law of reciprocal proportions.

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38. State thae law of multiple proportions.

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39. 1.5 g of each of the two oxides of an element of reduction with hydrogen produced 1.331 g and 1.196g

of the element respectively. Show that the result are in agreement with the law of reciprocal proportion.

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40. State the law of reciprocal proportions.

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41. Hydrogen sulphide contains 94.11% of sulphur, water contains11.11% of hydrogen and sulphur dioxide contain 50% oxygen. Show that these result are in agreement with the law of reciprocal proportion.

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42. State and explain law of multiple proportions.

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43. Hydrogen perocide and water contain 5.9% and 11.1% of hydrogen respectively.Show that the data illustrate the law of multiple proportions.

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44. State the law of multiple proportion.

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45. Carbon forms two oxides containing $42.8\%, 827.3\%$ of carbon show that the figures agree with the law of multiple proportion.

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46. State the law of reciprocal proportions.

Watch Video Solution

47. Water and sulphur dioxide contain $88.89\,\%$ and $50\,\%$ oxygen respectively. Hydrogen sulphide gas contains $94.1\,\%$ sulphur Show that the figures agree with law of reciprocal proportions.

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48. State the law of reciprocal proportions.

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49. Two oxides of a metal contain $80\,\%$ and $88.8\,\%$ of the metal respectively. Show that these data

illustrate the law of the multiple proportions.

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50. State the law of reciprocal proportion.

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51. 1.5 g of each of the two oxides of an element of reduction with hydrogen produced 1.331 g and 1.196g of the element respectively. Show that the result are in agreement with the law of reciprocal proportion.

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52. State the law of reciprocal proportions.

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53. Hydrogen sulphide contains 94.1% of sulphur, sulphur dioxide contains 11.1% of Oxygen and water contains 33.3% hydrogen.. Show that these results are in agreement with the law of reciprocal proportion.

A. Hydrogen sulphide contains 94.1% of sulphur, sulphur dioxide contain 11.1% of Oxygen and water contains 33.3% hydrogen. Show that

these result are in agreement with the law of reciprocal proportion.

B.

C.

D.

Answer:

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54. Which of the following stoichiometric laws suggests that different elements combine with each other by their equivalent weights ?

A. Law of definite proportion

B. Law of multiple proportion

C. Law of reciprocal proportion

D. Law of conservation of mass

Answer: C

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55. In the reaction $N_2 + 3H_2 \rightarrow 2NH_3$ ratio by volume of N_2, H_2 and NH_3 IS 1:3:2 This illustrate law of :

A. definite proportion

B. Multiple proportion

C. Reciprocal proportion

D. Gaseous volume

Answer: D

56. Different proportions of oxygen in the various oxides of nitrogen prove the law of:

A. Equivalent proportion

B. Multiple proportion

C. constant proportion

D. Conservation of matter

Answer: B

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57. Chemical equation is balanced according to the law of:

A. Multiple proportion

B. reciprocal proportion

C. Conservation of mass

D. Definite proportion

Answer: C

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58. Atomic weights of practically all the elements are very nearly whole numbers and not always whole numbers. This is because :

A. of existence of allotropic forms

B. Valency of elements have frictional values

C. Equivalent weights are not whole numbers

D. Of the existence of isotopes for all the elements

Answer: D

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59. The law of multiple proportions are illustrated by which pair of compounds?

A. Nacl and NaBr

B. H_2O AND D_2O`

C. NaoH and KoH

D. SO_2 and S_O3

Answer: D

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60. Law of raciprocd proportions can be used to determine :

A. Atomic weight of gas

B. equivalent weights

C. molecular weights of gases

D. None of these

Answer: B

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61. One of the important postulates of Dalton's atomic theory is :

A. an atom is made up electrons , protons ND neutrons

B. atom can neither be created nor be destroyed

C. atoms of same element are not like

D. All the elements naturally as atoms only

Answer: B

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62. According to the Dalton's atomic theory in a chemical change :

A. atoms are destroyed

B. atoms are made into new and different kind

C. Atoms are created

D. atoms are rearranged

Answer: D

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63. State Dalton's atomic theory.

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64. Write some important postulates of modern atomic theory.

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65. Describe the various postulates of Dalton's atomic theory.

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66. What are the limitations of this theory ?

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67. What is the value of Avogadro's number ?

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68. How many atoms are present in a molecule of white phosphorus?

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69. How many molecules are present in 2.24 ml of CO_2 are measured at STP ?

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70. Between one gram of water and one gram of methanol which has more number of molecule ?

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71. Find out the number of molecules in 0.5 g of nitrus oxide ?

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72. How many atoms are present in 49 grams of H_2SO_4 ?

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73. Calculate the number of moles in 25 grams of calcium carbonate ?

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74. How many gram atoms of oxygen are present in 11.2 litres of CO_2 at NTP ?

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75. One mole of nitrogen occupies _____ ml volume at NTP ?

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76. What is the mass of half a mole of oxygen atom ?

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77. How many moles of hydrogen are there in one mole of hydrogen peroxide ?

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78. What is the molar volume of 2 grams of hydrogen gas at NTP taking the atomic mass of hydrogen as 1?

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79. State Avogadro's hypothesis ?

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80. fill up the gap : 2 mole of nitrogen occupies _____ ml at NTP.

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81. Avogadro's number of helium weight how many grams ?

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82. What is the relationship between molecular mass and vapour density ?

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83. What volume of CO_2 is liberated at NTP from 0.1 mole of $CaCO_3$?

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84. What is the volume of 17.75 g of chlorine at NTP ?

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85. 50 ML of CO_2 at NTP weight 0.0982 gm. calculate the molecular mass of carbon dioxide .

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86. What is mean by average atomic mass ?

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87. Calculate the mass of 1 atom of carbon and 2 atoms of oxygen ?

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88. 1 litre gas at NTP weight 0.5 g what is molecular mass of gas ?

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89. Calculate the molecular mass of a gas If 0.5 g of it occupies 224 cc at NTP.

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90. What is the gram molecular volume of a gas ? What is its value at NTP ?

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91. Which of the following combinations illustrates laws of reciprocal ?

A. $N_{20} - 3, N_2O_4, N_2O_5$

B. PH_3, P_2O_5, P_2S_5

C. CS_2, CO_2, SO_2

D. NaCl , NaBr , NaI

Answer: C

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92. 12 g of an alkyl earth metal gave 14.8 g of its nitride .atomic weight of that metal is ,

A. 20

B. 12

C. 40

D. 14.8

Answer: C

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93. In chemical scale of relative mass of the isotopic mixture of oxygen atom (O^{16}, O^{17}, O^{18}) assumed to be equal to:

A. 16.002

B. 16

C. 16.2

D. 15..89

Answer: B

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94. Which property of an element is always a whole number ?

A. atomic weight

B. equivalent weight

C. atomic number

D. atomic volume

Answer: C

95. The molecular weight of hydrogen peroxide is 34.What is the unit of the molecular weight ?

A. g

B. mol

C. g mol^{-1}

D. mol g^{-1}

Answer: C

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96. The equivalent weight of an element is 4. its chloride has a V.D. 59.25 Then the valency of element is :

A. 4

B. 3

C. 2

D. 1

Answer: B

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97. If the equivalent weight of a tri- valent metal is 32.7. the molecular weight of its chloride is ,

A. 68.2

B. 103.7

C. 204.6

D. 32.7

Answer: C

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98. If 20% nitrogen is present in a compound its molecular weight will be ,

A. 0.144

B. 28

C. 100

D. 140

Answer: D

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99. Vapour density of a gas is 22. its molecular weight will be :

A. 33

B. 22

C. 44

D. 11

Answer: C

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100. 1 g of hydrogen is found to combine with 80 g of bromine. 1 g of calcium (valency=2) combines with 4 g of bromine The equivalent weight of the calcium is :

A. 10

B. 20

C. 40

D. 80

Answer: B

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101. An ion is reduced to element when it absorbs 6×10^{20} electrons. The number of equivalent of ion is :

A. 0.1

B. 0.01

C. 0.001

D. 0.0001

Answer: C

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102. In the reaction :

$2Na_2S_2O_3 + I_2 \rightarrow Na_2S_4O_6 + 2NaI$ the equivalent weight of $Na_2S_2O_3$ is equal to :

A. M

B. M/2

C. M/3

D. M/4

Answer: A

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103. The equivalent weight of $MnSO_4$ is half of its molecular weight when it is converted to :

A. Mn_2O_3

B. MnO_2

C. MnO_4^-

D. MnO_4^{2-}

Answer: B

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104. The equivalent weight of Mohr's salt having formula $FeSO_4(NH_4)_2SO_46H_2O$ is equal to :

A. Molecular weight

B. Atomic weight

C. Equivalennt weight

D. Equivalent weight as well as as mol.weight

Answer: A

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105. Balance the equation :

$C_2H_6 + O_2 \rightarrow C0_2 + H_2O$

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106. Balance the following skeleton equation :

$Sb_2O_3 + SnCl_2 + HCl \rightarrow SnCl_4 + Sb + H_2O$

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107. Write down the chemical formulae of the following compounds : magnesium nitride

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108. Write down the chemical formulae of the following compounds : Aluminium hydroxide

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109. Write down the chemical formulae of the following compounds : aluminium sulphate

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110. Write down the chemical formulae of the following compounds : Sodium phosphate

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111. Write down the chemical formulae of the following compounds : Aluminium phosphate

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112. Write the name of the following compounds : SnO_2

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113. Write the name of the following compounds : $Fe(SO_4)_3$

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114. Write the name of the following compounds : AlP

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115. Write the name of the following compounds : $NaAlO_2$

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116. Write the name of the following compounds :

KO_2

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117. Write the name of the following compounds :

K_2O_2

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118. Write the name of the following compounds :

K_2O

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119. Write the name of the following compounds :

Na_2SiO_3

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120. Write the name of the following compounds :

$KClO_4$

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121. Write the name of the following compounds : $Na_2S_2O_3$

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122. Write the formulae of the following : Zinc chloride

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123. Write the formulae of the following : Cupric bromide

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124. Write the formulae of the following : Potassium chloride

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125. Write the formulae of the following : Bismuth iodide

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126. Write the formulae of the following : calcium ferricyanide

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127. Write the formulae of the following : Cadmium phosphate

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128. Write the formulae of the following : pottasium ferrocyanide

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129. Write the formulae of the following : sodium metal aluminate

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130. Write the formulae of the following : sodium cobalt nitrate

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131. Write the formulae of the following : potassium pyroantimonate

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132. Write the names of the following compounds : $Ca(ClO_3)_2$

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133. Write the names of the following compounds :

$K_4\left[Fe(CN)_6\right.$

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134. Write the names of the following compounds :

Na_2CrO_4

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135. Write the names of the following compounds :

$Mg(HCO_3)_2$

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136. Write the names of the following compounds :

$Pb(CH_3COO)_2$

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137. Write the names of the following compounds :

$Mg(NH_4)PO_4$

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138. Write the names of the following compounds :

$Cr_2(SO_4)_3$

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139. Write the names of the following compounds :

Na_2ZnO_2

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140. Write the names of the following compounds :

$K_2Cr_2O_7$

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141. Write the names of the following compounds :

CaC_2O_4

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142. Name the valencies of copper :

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143. Name a monoatomic gas. What is its valency ?

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144. Which of the following elements shows variable valency ? What are those valencies Fe , Na , Ca , Si.

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145. Which acid is formed when sulphur dioxide dissolves in water ? Write its name and chemical formula ?

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146. Name and give the formula of the compound formed when SO_3 IS treated with heavy water.

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147. Balance the following equation :

$NaCl + H_2SO_4 \rightarrow Na_2SO_4 + HCl$

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148. Balance the following equation :

$FeS_2 + O_2 \rightarrow Fe_2O_3 + SO_2$

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149. Balance the following equation :

$$Cu + HNO_3 \rightarrow Cu(No_3)_2 + H_2O + NO$$

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150. Balance the following equation :

$$Al + Fe_3O_4 \rightarrow Al_2O_3 + Fe$$

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151. Complete and balance the following equations:

$P + H_2O + NaoH \rightarrow \_\ \_\_\ + \_\ \_\_\ \_$.

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152. Complete and balance the following equations:

$CuSO_4 + PH_3 \rightarrow \_\ \_\_\ + 3H_2SO_4$

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153. Complete and balance the following equations:

$Mg_3N_2 + H_2O \rightarrow Mg(OH)_2$

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154. Complete and balance the following equations:

$Pb(NO_3)_2 \xrightarrow{\triangle} \_\ \_\_.$

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155. Complete and balance the following equations:

$NaNO_3 \xrightarrow{\triangle} \_\ \_\_\ .$

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156. Complete and balance the following equations :

$KmnO_4 + HCl \rightarrow KCl + Mncl_2 + H_2O + Cl_2$

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157. Calculate the mass of : 1 atom of C^{14}

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158. Calculate the mass of : 1 atom of N_2

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159. Calculate the mass of : 1 molecule of water

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160. Calculate the mass of : 100 molecules of sucrose $(C_{12}H_{22}O_{11})$

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161. Calculate the mass of 1 amu in grams.

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162. A 0.005 cm thick coating of copper is deposited on a plate of $0.5m^2$ total area. Calculate the number of copper atoms deposited on the plate (density of copper = 7.2 g cm^{-3}, atomic mass = 63.5)

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163. Calculate the number of moles in the following masses : (i) 1.46 metric tons of Al (1 metric ton = 10^3 kg)

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164. Calculate the number of moles in the following masses : (ii) 7.9 mg of Ca

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165. Calculate the number of molecule present in : 1 kg oxygen

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166. Calculate the number of molecule present in : $1dm^3$ of hydrogen at S.T.P.

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167. Silver is a very precious metal and is used in jewellery. One million atoms of silver weight $1.79 \times 10^{-16} g$. calculate the atomic mass of silver.

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168. What is the mass of half of a mole of nitrogen atoms?

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169. Calculate the number of moles in 25 gm of calcium carbonate.

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170. How many gram atoms of oxygen are present in 11.2 litres of CO_2 at NTP ?

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171. How many moles are there in 8.8 grams of CO_2.

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172. What is the mass of half a mole of oxygen atom ?

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173. How many moles of hydrogen molecules are there in one mole of hydrogen peroxide?

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174. What is the molar volume of 2 grams of hydrogen gas at STP taking the atomic mass of hydrogen as 1?

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175. fill up the gap : 2 mole of nitrogen occupies _____ ml at STP.

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176. Avagadro's number of helium weight how many grams ?

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177. What volume of CO_2 is liberated at STP from 0.1 mole of $CaCo_3$?

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178. How many molecules will be present in one gram molecular mass of hydrogen gas ?

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179. How many moles of hydrogen molecule are there in one mole of sulphuric acid ?

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180. How many molecules are present in 2.24 ml of a gas at STP ?

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181. How many atoms of fluorine are there in 1.9×10^{-6} gram of fluorine (F=19 amu)

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182. What is gram molecular volume?

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183. Calculate the number of moles of oxygen in 11200 cc volume at STP.

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184. How many moles of nitrogen are present in 560 cc of it at STP.

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185. How many moles of nitrogen and nitrogen dioxide are present when the volume of each gas is 5600 cc at STP contains:

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186. What is the true value of Avagadro 's number ?

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187. How many grams atoms of oxygen are present in 1 mole of $CaCO_3$?

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188. Calculate the number of molecules in 0.1 mole of SO_2.

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189. Between one gram of water and one gram of methanol which has more number of molecule ?

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190. Calculate the number of atoms of oxygen present in 88 g of CO_2.

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191. Haemoglobin contains $0.33\ \%$ of iron by weight . The mol. Wt. of haemoglobin is approx.67200. The no of iron atoms (at.wt. of Fe = 56) present in one molecule of haemoglobin are :

A. 1

B. 2

C. 4

D. 6

Answer: C

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192. How many grams atoms of S are present in 0.25 g of S

A. 2.5

B. 32

C. 4

D. 6

Answer: A

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193. In a vessel 2 g of O_2 2g Of H_2 and 2 g of N_2 are present. Which has the largest no of atoms?

A. O_2

B. H_2

C. N_2

D. All have equal no of atoms

Answer: B

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194. How many grams of H_2SO_4 are present in o.25 mole of H_2SO_4.

A. 2.45

B. 24.5

C. 0.245

D. 0.25

Answer: B

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195. 18 g of water contains :

A. 1 g atom of hydrogen

B. 2 g atoms of hydrogen

C. 3g atoms of hydrogen

D. None of the above

Answer: B

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196. The number of atoms in 0.004 g of magnesium is closed to :

A. 24

B. 2×10^{20}

C. 10^{20}

D. 6.02×10^{23}

Answer: C

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197. The number of electrons in a mole of hydrogen molecule is :

A. 6.023×10^{23}

B. 12.046×10^{23}

C. 3.0115×10^{23}

D. Indefinite

Answer: B

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198. One mole of CO_2 contains

A. 6.02×10^{23} atoms of C

B. 6.02×10^{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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199. The number of moles of $BaCO_3$ Which contains 1.5 moles of oxygen atom is :

A. 0.5

B. 1

C. 3

D. 6.02×10^{23}

Answer: A

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200. How many moles of KI are required to produce 0.4 moles 0.4 K_2HgI_4 ?

A. 0.4

B. 0.88

C. 0.32

D. 1.6

Answer: B

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201. Volume of 4.4 g of CO_2 at STP is :

A. 2.24 litres

B. 22.4 litres

C. 4.48 llitres

D. 44.8 litres

Answer: A

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202. 4.4 g of an unknowm gas occupies 2.24 litres of volume at STP. The gas may be

A. carbon dioxide

B. Carbon monoxide

C. oxygen

D. sulphur

Answer: A

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203. Which one of the following has the smallest number of molecules ?

A. 0.1 mole of CO_2 gas

B. 11.2 litres of CO_2 gas at STP

C. 22 g of CO_2 gas

D. $22.4 \times 10^3 mlof$CO_2` gas at STP

Answer: A

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204. Choose the wrong statement

A. 1 mole means $6. .023 \times 10^{23}$ particles

B. molar mass is mass of one molecule

C. molar mass 1 mole of substance

D. molar mass is molecular mass expressed in grams

Answer: B

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205. Which one of the following contains particle equal to those in 12 g Mg ?(AT.WT. Mg = 24)

A. 12 g carbon

B. 7 g nitrogen

C. 32 g oxygen

D. 24 g carbon

Answer: B

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206. Calculate the percentage composition of sodium carbonate.

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207. An organic compound conatins carbon hydrogen and oxygen.1.80 g of the substance on combustion gave 2.64 g of carbon dioxide and 1.08 g of water. Calculate the empirical formula of the compound .

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208. A compound contains carbon hydrogen and nitrogen in the ratio 18:2:7 Calculate its empirical formula. If molecular mass of the compound is 108 What is the molecular formula ?

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209. A compound on analysis gave the following percentage composition. $Na = 14.31\,\%$, $S = 9.97\,\%$, $H = 6.22\,\%$, $O = 69.5\,\%$. The molecular mass of the substance is given as 322 Determine the molecular formula on the assumption that all the hydrogen atoms present in combination with oxygen as water of crystallisation : (AT. mass of Na =23 , H=1 , S=32, O=16)`

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210. What do you understand by empirical formula and molecular formula of a compound ? How are they

related ?

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211. A compound contains carbon hydrogen and nitrogen in the ratio 18:2:7 Calculate its empirical formula. If molecular mass of the compound is 108 What is the molecular formula ?

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212. Calculate the numbers of moles of hydrochloric acid required to produce 2.5 moles of carbon dioxide by completely reacting with limestone.

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213. Calculate the number of moles of iron can be obtained from Fe_2O_3 by the use of 28 mol of carbon monoxide.

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214. Calculate the weight of iron which will be converted into its oxide Fe_3O_4 by the action of 18 of steam on it.

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215. Calculate the mass of copper oxide formed by heating 12.35 g of copper carbonate ?

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216. What volume of CO_2 at NTP evolved by complete decomposition 25 g of $100\ \%$ pure calcium carbonate ?

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217. Calculate the mass of $KClO_3$ Which on decomposition produces 448 ml of oxygen gas at NTP

and KCl.

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218. Calculate the volume of oxygen at NTP is required to cause complete combustion of 100 ml of ethylene at NTP. Also calculate the volume of CO_2 formed at NTP.

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219. Silver is a very precious metal and is used in jewellery. One million atoms of silver weight $1.79 \times 10^{-16} g$. calculate the atomic mass of silver.

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220. Calculate the mass of $KClO_3$ Which on decomposition produces 448 ml of oxygen gas at NTP and KCl.

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221. A mixture of $CO_2$and CO of volume 1 litre on passing through a tube containing red hot charcoal becomes 1.6 litres measured at same temperature and pressure. Calculate the composition of the gaseous mixture.

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222. Calculate the amount of Agcl precipitate formed by adding a solution of HCl containing 0.035 g of HCl and a solution of $AgNO_3$ containing 1.7 g of $AgNO_3$

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223. 1.0 g Mg burnt is a closed vessel which contains 0.5 g of O_2. Which is the limiting reactant ? What is the Mgo formed in the reaction ?

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224. What amount of calcium is required to produce 5.6 of CaO ?

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225. Calculate the volume of oxygen at NTP will react with 1.0 g of calcium

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226. What volume of acetylene at NTP will be produced from 100 g of CaC_2 when reacts with excess of water ?

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227. Calculate the mass of calcium oxide formed when 25 g of 80% pure lime stone is completely decomposed on heating.

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228. 7g of $MgCO_3$ after reaction with 14 g solution of H_2SO_4 left 0.7 g of $MgCO_3$ unreacted calculate the percentage strength of H_2SO_4.

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229. 10 g of $KClO_3$ ON heating gave enough oxygen to react completely with hydrogen produced by the action of dil H_2SO_4 on zinc. Required for this purpose. [K=39 , Cl=35.5 , Zn=65]

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230. 1.84 g of mixture of $CaCO_3$ and $MgCO_3$ are heated strongly till no further loss of weight takes place. The residue weighs 0.96g Find the percentage composition of the mixture.

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231. One gram of a mixture of KCl and KI dissolved in water and precipitated with silver nitrate 1.618g of silver halides are obtained calculate the percentage composition of mixture.

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232. 1.0 gm of mixture of $CaCO_3$ and $MgCo_3$ on one complete of decomposition gave 240 ml of CO_2 at NTP. Calculate the percentage composition of mixture.

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233. 1.0 gm of an alloy of aluminium and magnesium when treated with excess of dilute HCl forms magnesium chloride aluminium chloride and hydrogen. The evolved hydrogen collected over mercury at `0^@C has a volume of 1.20 litres at 0.92 atm pressure Calculate the composition of alloy.[Al = 27 , Mg=24.3]

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234. When steam is passed over red hot iron of 18 moles completely converted into Fe_3O_4 calculate the moles of H_2 gas produced ?

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235. Calculate the number of moles of nitrogen is required to produce 15.6 moles of ammonia by reaction with hydrogen ?

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236. Calculate the number of moles of iron can be obtained from Fe_2O_3 by the use of 28 mol of carbon monoxide.

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237. Calculate the mass of CaO and CO_2 formed by heating 10 gms of $CaCo_3$.

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238. Calculate the mass of $KClO_3$ required to produce 9.6 gm of oxygen.

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239. What mass of calcium oxide will be obtained by heating 3 mol of $CaCO_3$.

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240. Calculate the mass of iron required to be converted into its oxide (Fe_3O_4) by the action of 23.4 g of steam on it .

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241. Calculate the amount of chlorine required to completely react with 4.56 g of hydrogen (h_2) to yield hydrochloric acid (HCl) ? Also calculate the amount of HCl formed.

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242. Calculate the mass of zinc required to produce enough hydrogen to reduce completely 6.7 g of copper oxide of copper ?

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243. Calculate the volume of CO_2 at NTP produced. By complete combustion of 3 g of carbon.

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244. What is the volume of CO_2 at NTP produced from 10 gm of pure limestone, when dissolved on

excess of dilute HCl ?

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245. Calculate the volume of hydrogen at NTP produced, when 6 gm of magnesium is dissolved in excess of dilute sulphuric acid.

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246. Calculate the volume of hydrogen evolved at 400K and 700 mm pressure by treating 5.6g of super heated iron with sufficient steam.

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247. Calculate the volume of air at N.T.P. containing 20% of oxygen by volume is required for complete burning of 100 g of sulphur containing 6% incombustible matter.

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248. $KClO_3$ on heating decomposes to give KCl and O_2 What is the volume of O_2 at N.T.P liberated by 0.1 mole of $KClO_3$?

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249. What amount of $KClO_3$ is required to supply oxygen which is required for complete burning of 11.2 l of CO gas at NTP to CO_2.

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250. What volume of HCl gas formed when 10 litre of H_2 gas is allowed to completely react with 10 litre of H_2 gas and 10 litre of Cl_2 gas at the same temperature and pressure.

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251. What is the volume of oxygen at N.T.P. needed to cause complete combustion of 100 ml of acetylene and also calculate the volume of carbon dioxide.

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252. What is the volume of oxygen at N.T.P. needed to cause complete combustion of 100 ml of acetylene and also calculate the volume of carbon dioxide.

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253. One litre of a mixture of carbon mono oxide and carbon dioxide is passed through a tube containing red hot charcoal. The volume becomes 1.6 litres. Find the composition of the gaseous mixture.

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254. 1 litre of oxygen at N.T.P. is allowed to react with three times of carbon monoxide at N.T.P. Calculate the volume of each gas found after the reaction

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255. A gaseous mixture of 3L of propoane and butane on complete combustion at $25^{\circ} C$ produced 10 L CO_2 . Find out composition of the gaseous mixture.

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256. What is the SI unit of surface tension ?

Watch Video Solution

257. What is the si unit of viscosity?

Watch Video Solution

258. Which of the following is an element?

A. Hydrogen peroxide

B. Ozone $(O_3)_7$

C. sand

D. Wood

Answer: C

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259. Define molecule.

Watch Video Solution

260. Three masses of oxygen in ferric oxide and ferrous oxide are in the simple ratio of ___

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261. Which law explains the chemical combination of elements in H_2O, H_2S, SO_2?

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262. Which law explains the chemical combination of elements in CO , CO_2 ?

Watch Video Solution

263. Which law explains the chemical combination of elements in H_2O ?

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264. Express the relationship between equivalent mass ,valency and atomic mass of an element.

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265. What is the equivalent weight of sodium ?

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266. What is the relationship between atomic mass and equivalent mass of oxygen ?

Watch Video Solution

267. Write gram equivalent mass of oxygen ?

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268. The atomic mass of a metal 'M' is 27 and its equivalent mass is 9. The formula of metal sulphate is

_____.

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269. What is the equivalent mass of an element?

Watch Video Solution

270. Chemical standard for expressing atomic mass is

:

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271. How many molecules are present in 0.224 L of a gas at N.T.P.?

Watch Video Solution

272. What is the volume of 17.75 g of chlorine at NTP ?

Watch Video Solution

273. How many molecules of oxygen are present in one mole of sulphuric acid ?

Watch Video Solution

274. Avagadro's number of helium weight how many grams ?

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275. How many moles of hydrogen molecules are there in one mole of hydrogen peroxide?

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276. What is the molar volume of 2 grams of hydrogen gas at NTP taking the atomic mass of hydrogen as 1?

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277. One mole of CO_2 contains

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278. What is the value of Avogadro's number ?

Watch Video Solution

279. If 5.6 litere of a gas at NTP weights 8.25 g its vapour density ?

Watch Video Solution

Watch Video Solution

280. 8 gm of oxygen occupies ___- litre at NTP.

Watch Video Solution

281. What is the value of GMV at NTP.

Watch Video Solution

282. Balance the following equation :

$NaCl + H_2SO_4 \rightarrow Na_2SO_4 + HCl$

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283. Balance the following equation :

$FeS_2 + O_2 \rightarrow Fe_2O_3 + SO_2$

Watch Video Solution

284. Balance the following equation :

$Cu + HNO_3 \rightarrow Cu(No_3)_2 + H_2O + NO$

Watch Video Solution

285. Balance the following equation :

$Al + Fe_3O_4 \rightarrow Al_2O_3 + Fe$

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286. Which of the following elements shows variable valency ? What are those valencies Fe , Na , Ca , Si.

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287. Write down the chemical formulae of the following compounds : Aluminium phosphate

Watch Video Solution

288. What is the formula of lead nitrate ?

Watch Video Solution

289. How many atoms are present in a molecule of white phosphorus?

Watch Video Solution

290. Write down the chemical formulae of the following compounds : aluminium sulphate

Watch Video Solution

291. How many atoms of oxygen are present in 4.4 gm of CO_2 at NTP ?

Watch Video Solution

292. What is the mass of 224 ml of oxygen at NTP ?

Watch Video Solution

293. How many atoms are present in 10 gms of calcium carbonate ?

Watch Video Solution

294. How many atoms of hydrogen are present in two molecule H_3PO_4?

Watch Video Solution

295. How many moles of hydrogen molecules are there in one mole of hydrogen peroxide?

Watch Video Solution

296. How many molecules will be present in one gram molecular mass of hydrogen gas ?

Watch Video Solution

297. fill up the gap : 2 mole of nitrogen occupies _____ ml at STP.

Watch Video Solution

298. What is the mass of half a mole of oxygen atom ?

Watch Video Solution

299. one mole of sulphur contains _____ atoms .

Watch Video Solution

300. Weight of 0.2 moles of CO_2 gas is _____ gram .

Watch Video Solution

301. 8 gm of SO_2 gas is _____ mole and occupies ____-lit at STP.

Watch Video Solution

302. How many atoms are present in 4.9 gms of suphuric acid ?

Watch Video Solution

303. What is the relationship between molecular mass and vapour density ?

Watch Video Solution

304. Define molarity of a solution ?

Watch Video Solution

305. What is the molarity of a solution containing 0.25 mole of the solute in 250gm of the solvent ?

Watch Video Solution

306. Define molality ?

Watch Video Solution

307. What volume of CO_2 is liberated at NTP from 0.1 mole of $CaCO_3$?

Watch Video Solution

308. 10 gms of $CaCO_3$ on heating gives ____ litre of CO_2 at N.T.P.

Watch Video Solution

Watch Video Solution

309. Calculate the mass of 1 amu in grams.

Watch Video Solution

310. Define molecular mass ?

Watch Video Solution

311. Equivalent mass of an element may vary. Explain with example.

Watch Video Solution

312. State avagadro's law ?

Watch Video Solution

313. Prove that gram molecular mass of any gas occupies 22.4 litre at NTP .

Watch Video Solution

314. What is gram molecular volume of a gas ? What is its value at STP?

Watch Video Solution

315. Prove that one gram of nitrogen and one gram of carbon mono oxide contain nearly same number of molecules .

Watch Video Solution

316. Calculate the molecular mass of a gas If 0.5 g of it occupies 224 cc at NTP.

Watch Video Solution

317. Calculate the numbers of atoms and molecules present in 6 gms of oxygen .

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318. A piece of copper weights 0.635 gm. How many atoms of copper does it contain ?

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319. State the law of reciprocal proportion.

Watch Video Solution

320. State thae law of multiple proportions.

Watch Video Solution

321. State of law of definite proportion.

Watch Video Solution

322. Calculate the number of moles in an iron bar dimension $10cm \times 4cm \times 2. .5cm$ density of iron being 7.85 gm/cm^3

Watch Video Solution

323. What would be the volume of 44 gm of carbon dioxide at S.T.P.

Watch Video Solution

324. Calculate the number of molecules present in 4 gms of NaOH.

Watch Video Solution

325. Calculate the number of molecules of a gas occupying 280 ml at STP.

Watch Video Solution

326. Calculate the number of molecules in 11 gram of carbon dioxide

Watch Video Solution

327. Calculate the number of molecules in 1 gm water.

Watch Video Solution

328. Calculate the number of atoms in 20 gms of calcium atom of calcium is 40.

Watch Video Solution

329. Calculate the total charge in a mole of electron.

Watch Video Solution

330. 1 litre of a gas at NTP weights 0.5 gm .What is the molecular weight of the gas ?

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331. The measured density of helium gas at NTP is 0.1784 gm per litre. What is the weight of 1 mole of

this gas ?

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332. How many molecules are present in 90 gms of water ?

Watch Video Solution

333. Give the simplest formula of a compound containing 50% of element , X (atomic mass =10) and 50% of Y (Atomic MASS= 20)

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334. What is the amount of caustic soda present in 25 ml of 0.05 M solution ?

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335. Calculate the normality of the following : 0.585 g NaCl/100 cc solution

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336. Calculate the normality of the following : 0.49 g H_2SO_4 / 1000 solution.

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337. 5.85 g of NaCl is dissolved in 90 g water what is the mole fraction of NaCl ?

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338. Define molality. 29.25 gms of NaCl are present in 529.25 gms of solution . Find out the molality .

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339. Calculate the normality of the resulting solution obtained by mixing 10 cc of N/2 HCl with 30 cc of N/10 H_2SO_4.

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340. What is the amount of $BaSO_4$ Formed when 0.02 mole of $BaCl_2$ solution is treated with excess of Na_2SO_4 Solution,(Ba =137 , S= 32 , Na =23)

Watch Video Solution

341. By heating 10 gms of $CaCO_3$ 5.6 gms of Cao formed . What is the weight of CO_2 obtained in this reaction ?

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342. Calculate the volume of oxygen and volume of air needed for combustion of 1 kg of carbon at S.T.P.

Watch Video Solution

343. To neutralise 20 ml of M/10 NaOH the volume of M/20 HCl needed is :

A. 10 ml

B. 30 ml

C. 40 ml

D. 20 ml

Answer: C

Watch Video Solution

344. H_3PO_4 is tribasic acid and one of its salts is NaH_2PO_4.. What volume of 1 M NaOH should be added to 12 g NaH_2PO_4 (mol.wt.120) to exactly convert it into Na_3po_4.

A. 100ml

B. 300 ml

C. 200 ml

D. 80 ml

Answer: C

Watch Video Solution

345. What volume of 0.8 M solution contains 0.1 m mole of solute :

A. 100 ml

B. 125 ml

C. 500 ml

D. 0.125 ml

Answer: D

Watch Video Solution

346. If a compound contains two oxygen atoms four carbon atoms and number of hydrogen atoms is double of carbon atoms the vapour density of it is :

A. 88

B. 44

C. 132

D. 72

Answer: B

Watch Video Solution

347. The vapour density of pure ozone would be :

A. 48

B. 32

C. 24

D. 16

Answer: C

Watch Video Solution

348. The reaction $2C + O_2 \rightarrow 2CO_2$ is carried out by taking 24 g carbon and 96 gm o_2 which one is limiting reagent :

A. C

B. O_2

C. CO_2

D. NONE

Answer: A

Watch Video Solution

349. One litre CO_2 is passed over hot coke . The volume becomes 1.4 litre . The percent composition of products is :

A. 0.6 litre CO

B. 0.8 litre CO_2

C. 0.6 litre CO_2 and 0.8 litre CO

D. None

Answer: C

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350. Number of mole of 1 m^3 gas at NTP are :

A. 44.6

B. 40.6

C. 42.6

D. 48.6

Answer: A

Watch Video Solution

351. Amount of oxygen required for complete combustion of 27 g Al IS :

A. 24g

B. 12 g

C. 20 g

D. 6 g

Answer: A

Watch Video Solution

352. The largest number of molecules are in

A. $36gH_2O$

B. 28 g CO

C. 46 g C_2H_5OH

D. 54 g N_2O_5

Answer: A

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353. The number of molecules in 27 g of water is :

A. 9.033×10^{23}

B. 6.022×10^{23}

C. 27

D. 3.011×10^{22}

Answer: A

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354. The volume of 20 g oh H_2 at STP is :

A. 224 litre

B. 22.4 litres

C. 2.24 litre

D. 112 litre

Answer: A

Watch Video Solution

355. 22g of CO_2 at STP will occupy :

A. 11.2 litre

B. 22.4 litres

C. 2.24 litre

D. 112 litre

Answer: A

Watch Video Solution

356. The volume of gram molar volume of gas is :

A. 1 litre

B. 22.4 litres

C. 11.2 litre

D. 22.4 litre at STP

Answer: D

Watch Video Solution

357. 0.44 g of a colourless oxide of nitrogen occupies 224 ml at STP. The compound is :

A. N_2O

B. NO

C. N_2O_2

D. NO_2

Answer: A

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358. Molecular weight of tribasic acis is W. its equivalent weight will be :

A. W/2

B. W/3

C. W

D. 3W

Answer: B

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359. A , E, M , and n are the atomic weight equivalent weight , molecular weight and valence of an element . The correct relation is :

A. $A = E \times n$

B. A = M/E

C. A = M/n

D. M = $A \times n$

Answer: A

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360. The equivalent weight of acid is obtained by dividing its mol. Wt. by its :

A. Acidity

B. Basicity

C. Ph

D. None

Answer: B

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361. The weight of two elements which combine with one another are in the ratio of their :

A. AT. WT.

B. Mol.wt.

C. eq.wt.

D. none

Answer: C

Watch Video Solution

362. Which property of an element is not variable :

A. Valence

B. AT. WT.

C. eq.wt.

D. None

Answer: B

Watch Video Solution

363. For the reaction $A + 2B \rightarrow C$, 5 mole of A and 8 mole of B will produce :

A. 5 mole of C

B. 4 mole of C

C. 8 mole of C

D. 13 mole of C

Answer: B

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364. 10 ml of gaseous hydrocarbon on combustion gives 40 ml of CO_2 _ (g) and 50 ml of H_2O (vap) . The hydrocarbon is :

A. C_4H_5

B. C_8H_{10}

C. C_4H_8

D. C_4H_{10}

Answer: D

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365. 2.76 g of silver carbonate on being strongly heated yields a residue weighing :

A. 2.16 g

B. 2.48 g

C. 2.32 g

D. 2.64 g

Answer: A

Watch Video Solution

366. The maximum amount of $BaSO_4$ precipitated on mixing 20 ml of 0.5 M $BaCl_2$ with 20 ml of 1 M H_2SO_4 is :

A. 0.25 mole

B. 0.5 mole

C. 1 mole

D. 0.01 mole

Answer: D

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367. The number of mole of water in 488 g $BaCl_2, 2H_2O$ are :

A. 2

B. 3

C. 4

D. 5

Answer: C

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368. 100 ml of PH_3 when decomposed produces phosphorus and hydrogen . The change in volume is :

A. 50 ml increase

B. 500 ml decrease

C. 900 ml decrease

D. None

Answer: A

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369. In one mole of ethanol (C_2H_5OH) completely burns to carbon dioxide and water the weight of carbon dioxide formed is about :

A. 22g

B. 45 g

C. 66 g

D. 88g

Answer: D

Watch Video Solution

370. What is the weight of oxygen that is required for the complete combustion of 2.8 kg of ethylene :

A. 2.8 kg

B. 6.4 kg

C. 96.0 kg

D. 9.6 kg

Answer: D

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371. The weight of $50\,\%$ (wt/wt) solution of HCl required to react with 100 g of $CaCO_3$ would be :

A. 73 g

B. 100 g

C. 146 g

D. 200 g

Answer: C

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372. Which mode of expressing concentration is independent of temperature :

A. Molarity

B. Molality

C. Formality

D. Normality

Answer: B

Watch Video Solution

373. The volume of 0.1 M H_2SO_4 required to neutralise 30 ml of 2.0 M NaOH is :

A. 100ml

B. 300ml

C. 400 ml

D. 200 ml

Answer: B

Watch Video Solution

374. The empirical formula of compound is CH_2O , if its V_P is 30. its molecular formula is :

A. CH_2O

B. $C_2H_4O_2$

C. $C_3H_6O_3$

D. CH_3OH

Answer: B

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375. Volume of 0.1 M NaOH needed for the neutralisation of 20 ml of 0.05 M oxalic acid is :

A. 10 ml

B. 15 ml

C. 20 ml

D. 30 ml

Answer: C

Watch Video Solution

376. Molecular weight of oxalic acid is 126 the weight of oxalic acid required to neutralise 1000ml of normal solution of NaOH is :

A. 126 g

B. 63 g

C. 6.3 g

D. 12.6 g

Answer: B

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377. Insulin conatains 3.4% sulphur .The minimum mol. Weight of insulin is :

A. 941.176

B. 944

C. 945.27

D. None

Answer: A

Watch Video Solution

378. The weight of substance that displaces 22.4 litre air at NTP is :

A. Mol.wt.

B. At.wt.

C. eq.wt.

D. All

Answer: A

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379. In the relationship molecular formula = empirical formula $\times n$. The 'n' may have :

A. Any value

B. Zero values

C. Only positive integer value

D. None of these

Answer: C

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380. The number of atom is an mole gas can be given by :

A. $n \times \text{Av.no} \times \text{atomicity}$

B. $\frac{n \times Av.\ no}{\text{Atomicity}}$

C. $\frac{Av.\ no \times \text{Atomicity}}{n}$

D. None of these

Answer: A

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381. The number of molecules in 4.25 g of ammonia in approximately :

A. 3.5×10^{23}

B. 1.5×10^{23}

C. 0.5×10^{23}

D. 2.5×10^{23}

Answer: B

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382. The total number of protons , electrons and neutrons in 12 g of ${}^{12}_{6}C$ IS :

A. 1.084×10^{25}

B. 6.022×10^{23}

C. 6.022×10^{22}

D. 18

Answer: A

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

A. C_2H_2

B. C_3H_3

C. C_4H_4

D. C_6H_6

Answer: D

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384. The percent loss in weight after heating a pure sample of pottasium chlorate (mol.wt. =122.5) will be :

A. 12.25

B. 24.5

C. 39.18

D. 49

Answer: C

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385. The volume of oxygen required for complete oxidation of 2.0 litre methane at NTP is :

A. 12.25 litre

B. 4 litre

C. 1 litre

D. 3 litre

Answer: B

Watch Video Solution

386. The percentage of nitrogen in urea is about :

A. 38.4

B. 46.6

C. 59.1

D. 61.3

Answer: B

Watch Video Solution

387. If 0.5 mole of $BaCl_2$ is mixed with 0.2 mole of $Na_3PO_4$the maximum number of mole of $Ba_3(PO_4)$ that can be formed is :

A. 0.7

B. 0.5

C. 0.3

D. 0.1

Answer: D

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388. The molarity of a glucose solution containing 36 g of glucose per 400 ml of the solution is :

A. 1

B. 0.5

C. 2

D. 0.05

Answer: B

Watch Video Solution

389. In order to liberate 4 N electrons how many gram of Mg has to react :

A. 12 g

B. 48 g

C. 96 g

D. 24 g

Answer: D

Watch Video Solution

390. The isotopic abundance of C-12 and C-14 is 98% and 2% respectively : What would be the number of C-14 isotope in 12 g carbon sample :

A. 1.032×10^{22}

B. 3.01×10^{23}

C. 5.88×10^{23}

D. 6.02×10^{23}

Answer: A

Watch Video Solution

391. Amount of oxygen required for combustion of 1 kg of a mixture of butane and isobutane is :

A. 1.8 kg

B. 2.7 kg

C. 4.5 kg

D. 3.58 kg

Answer: D

Watch Video Solution

392. To prepare 0.1 M $KMNO_4$ solution in 250 ml flask the weight of $KMNO_4$ required is :

A. 4.80 g

B. 3.95 g

C. 39..5 g

D. 0.48 g

Answer: B

Watch Video Solution

393. 1 g of pure calcium carbonate was found to require 50 ml of dilute HCl for complete reactions. The strength of the HCl solution is given by :

A. 4N

B. 2 N

C. 0.4 N

D. 0.2 N

Answer: C

Watch Video Solution

394. What will be the normality of a solution obtained by mixing 0.45 N and 0.60 N NaOH in the ratio 2:1 by volume :

A. 0.4 N

B. 0.5 N

C. 1.05 N

D. 0.15 N

Answer: B

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395. 100 ml each of 0.5 NaOH , N/5 HCl and N/10 H_2SO_4 are mixed together . The resulting solution will be :

A. Acidic

B. Neutral

C. Alkaline

D. None of these

Answer: C

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396. 25 ml of 3.0 M HNO_3 are mixed with 75 ml of 4.0 M HNO_3 . If the volume are additive the molarity of the final mixture would be :

A. 3.25 M

B. 4.0M

C. 3.75 M

D. 3.50 M

Answer: C

Watch Video Solution

397. The molarity of pure water is :

A. 55.6

B. 50

C. 100

D. 18

Answer: A

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398. A metal M forms a compound M_2HPO_4 The formula of the metal sulphate is :

A. M_2SO_4

B. MSO_4

C. $M(SO_4)_2$

D. $M_2(SO_4)_3$

Answer: A

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399. A metal forms a compound $MHPO_4$. What should be the formula of the metal chloride :

A. MCl_2

B. MCl_3

C. MCl

D. MCl_4

Answer: A

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400. Give the simplest formula of a compound containing $50\ \%$ of element , X (atomic mass =10) and $50\ \%$ of Y (Atomic MASS= 20)

A. XY

B. X_2Y

C. XY_2

D. X_2Y_2

Answer: B

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401. An oxide of sulphur contains 50% S. What will be the empirical formula :

A. SO

B. SO_2

C. SO_3

D. S_2O_3

Answer: B

Watch Video Solution

402. An element A (at.wt.=75) and B (at.wt. =25) combine to form a compound . The compound contains 75% A by weight. The formula of the compound will be :

A. A_2B

B. A_3B

C. AB_3

D. AB

Answer: D