ARJUNA-NEET (Chemistry)

PRACTICE TEST-01

46. How many significant figures are there in 4000?
(A) 1 (B) 4
(C) 2 (D) 0

47. Which of the following is Heterogeneous mixture?
(A) Rasna Juice (B) Sand + Fe
(C) Lemon juice (D) Humidity

48. What is Emperical formula of Glucose
(A) CH_2O (B) $C_6H_{12}O_6$
(C) $C_{12}H_{22}O_{11}$ (D) None of these

49. 1 pm = ? mm
(A) 10^{-1} (B) 10^{-9}
(C) 10^{-3} (D) 10^{-6}

50. Which of the following pairs of compound illustrate how of multiple proportions?
(A) KOH, CsOH (B) H_2O, D_2O
(C) C_2H_6, C_6H_6 (D) KCl, KBr

51. When 200 gm of Limestone is strongly heated, it undergoes thermal decomposition to form 112 g of lime an unknown mass of carbon dioxide gas as $\underset{200\ g}{CaCO_3} \rightarrow \underset{112\ gm}{CaO} + CO_2$, what will be the mass of CO_2 formed?
(A) 88 g (B) 24 g
(C) 64 g (D) 40 g

52. What is the n-factor (Basicity) of orthoboric acid (H_3BO_3)?
(A) 3 (B) 1
(C) 2 (D) 0

53. 32 gm of metal reacts with 48 gm O_2. Find equivalent mass of metal?
(A) 5.3 (B) 3.5
(C) 4.2 (D) 2.8

54. 1 amu is equals to
(A) 6.02×10^{23}
(B) $\frac{1}{N_A}$ ($N_A = 6.02 \times 10^{23}$)
(C) 1.66×10^{-24} g
(D) Both (C) and (D)

55. Molality is expressed in units of
(A) mol kg^{-1} (B) mol L^{-1}
(C) mol L^{-1} S^{-1} (D) mol^1 g^{-1} S^{-1}

56. A solution is prepared by dissolving 1.0 g of NaOH in water to get 250 ml of solution calculate its molarity.
(A) 2.5 (B) 4.5
(C) 5.0 (D) 0.1

57. 50 g of magnesium carbonate ($MgCO_3$) sample decomposes on heating to give magnesium oxide (MgO) and 11 g of carbon dioxide (CO_2). Percentage purity of $MgCO_3$ in the sample is
(A) 42% (B) 25%
(C) 30% (D) 58%

58. A concentrated aqueous solution is 98% H_2SO_4 by mass and density 1.8 g/ml. The volume of this acid required to make 500 ml of 0.2 M H_2SO_4 solution is
(A) 11.55 ml (B) 55.5 ml
(C) 25.5 ml (D) 5.55 ml

59. In the reaction, $2NaOH + H_3PO_3 \rightarrow Na_2HPO_3 + 2H_2O$, the equivalent mass of H_3PO_3 is (M : Molar mass of H_3PO_3)

(A) M (B) $\frac{M}{3}$

(C) $\frac{M}{2}$ (D) $\frac{2M}{3}$

60. Total number of atoms present in 11.2 ml of CO_2 (g) at STP is

(A) $1.5\ N_A$ (B) $1.5 \times 10^{-5}\ N_A$

(C) $1.5 \times 10^{-3}\ N_A$ (D) $150\ N_A$

61. In which mode of expression, the concentration of a solution depends on temperature?

(A) Normality

(B) Molarity

(C) Volume strength

(D) All of these

62. Maximum number of atoms is present in

(A) 48 g O atom (B) 48 g O_2

(C) 48 g O_3 (D) 5 mole of O_2

63. The number of significant figures in 3.35×10^{-18} is

(A) Three (B) One

(C) Four (D) Two

64. Mass of Mg required to produce 11.2 *l* of H_2 gas as STP on reaction with dilute HCl will be

(A) 6 g (B) 18 g

(C) 12 g (D) 24 g

65. Which of the following pair of species illustrates law of multiple proportions?

(A) O_2, O_3 (B) H_2O, D_2O

(C) CH_4, C_2H_6 (D) KOH, KCl

66. Mole fraction of NaOH in its aqueous solution having its molality 2 is

(A) 0.015 (B) 0.035

(C) 0.028 (D) 0.045

67. An element(A) has the following isotopic composition, ^{100}A : 40%, ^{102}A : 60%. The weighted average atomic mass of the naturally occurring element A is nearly equal to

(A) 100.9 (B) 101.4

(C) 101.7 (D) 101.2

68. A gaseous mixture contains equal mass of oxygen and hydrogen. The ratio of their molecules is

(A) 1 : 4 (B) 1 : 16

(C) 1 : 2 (D) 1 : 32

69. 200 g of impure sample of $KClO_3$ on heating gives 48 g of O_2.

$$2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$$

The percentage purity of $KClO_3$ is (Molar mass of $KClO_3$ = 122.5 g mol^{-1})

(A) 80.5% (B) 61.25%

(C) 75% (D) 68.2%

70. Number of g-atom of Na present in 2.3 kg of Na is (Atomic mass Na = 23 u)

(A) 50 (B) 25

(C) 200 (D) 100

71. Mass of one molecule of H_2S in (Atomic mass of sulphur = 32 u)

(A) 34 g (B) 34 mg

(C) $\frac{34}{N_A}$ g (D) $\frac{N_A}{34}$ g

72. 12 g of magnesium is reacted with excess of hydrochloric acid (HCl). The volume of H_2 gas liberated at STP is (Atomic mass of Mg = 24 u)

(A) 5.6 L (B) 11.2 L

(C) 22.4 L (D) 44.8 L

73. If equal mass of H_2 and O_2 is present in a closed vessel then the ratio of their moles is

(A) 8 : 1 (B) 4 : 1

(C) 16 : 1 (D) 12 : 1

74. Number of carbon atoms present in 50 g of $CaCO_3$ is (Molar mass of $CaCO_3$ = 100 g mol^{-1})

(A) 0.5 N_A (B) 5 N_A
(C) 4 N_A (D) 1.5 N_A

75. Consider the following hypothetical reaction

$2A + 4B \rightarrow C$

If 8 mole of A is reacted with 12 mole of B then maximum moles of C formed will be

(A) 4 (B) 6
(C) 3 (D) 2

76. 3.01×10^{23} molecules of urea is present in 250 ml aqueous solution. Molarity of urea in the solution is ($N_A = 6.02 \times 10^{23}$)

(A) 2 M (B) 1 M
(C) 3 M (D) 4 M

77. Number of electrons present in 12 g of carbon is

(A) N_A (B) $2N_A$
(C) $4N_A$ (D) $6N_A$

78. If molarity of 100 ml aqueous solution of glucose ($C_6H_{12}O_6$) is 1.5 M, then the number of carbon atoms present in the solution is

(A) 1.5 N_A (B) 0.15 N_A
(C) 0.9 N_A (D) 2.5 N_A

79. If 10 g of metal oxide contains 9 g of metal then the equivalent weight of the metal will be

(A) 60 g (B) 52 g
(C) 42 g (D) 72 g

80. If empirical formula of a hydrocarbon is CH_2 and molar mass of the compound is 78 g mol^{-1} then molecular formula of the compound is

(A) C_3H_6 (B) C_6H_{12}
(C) C_5H_{10} (D) C_4H_8

81. Equivalent weight of sulphuric acid (H_2SO_4) when it is completely neutralized by NaOH, is

(A) 49 (B) 98
(C) 24.5 (D) 52

82. Mass percentage of oxygen in hydrogen peroxide (H_2O_2) is

(A) 85.2% (B) 94.1%
(C) 75.7% (D) 89.1%

83. Number of moles is 98 gm H_2SO_4?

(A) 1 (B) 2
(C) 3 (D) 4

84. Volume occupied by 6.02×10^{24} molecules of CH_4 at STP is

(A) 22.4 L (B) 112 L
(C) 180 L (D) 224 L

85. Number of glucose molecules present in 720 u of glucose is (Molecular mas of glucose = 180 u)

(A) 2 (B) 4
(C) 6 (D) 8

86. Which among the following contains highest number of atoms?

(A) 0.5 mole of SO_3
(B) 0.5 mole of H_2SO_4
(C) 1 mole of H_2
(D) 1 mole of SO_2

87. Mass of nitrogen present in 4.6 g of NO_2 is (Atomic mass of N = 14 u and O = 16 u)

(A) 2.8 g (B) 2.2 g
(C) 1.8 g (D) 1.4 g

88. Mole of oxygen required to react completely with 90 g of C_2H_6 is

$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

(A) 7 (B) 8.5
(C) 10.5 (D) 12

89. 27 g of Al is reacted with 32 g of O_2. Mole of Al_2O_3 formed according to the following equation is

$4Al + 3O_2 \rightarrow 2Al_2O_3$

(Atomic mass of Al = 27 u, O = 16 u)

(A) $\frac{1}{2}$ (B) $\frac{1}{3}$

(C) 1 (D) $\frac{1}{4}$

90. Number of oxygen atoms present in 224 ml of O_2 at STP is

(A) $\frac{1}{100}N_A$ (B) $\frac{1}{50}N_A$

(C) $\frac{1}{25}N_A$ (D) $\frac{1}{75}N_A$

ANSWERS KEY

46.	(A)	**61.**	(D)	**76.**	(A)
47.	(B)	**62.**	(D)	**77.**	(D)
48.	(A)	**63.**	(A)	**78.**	(C)
49.	(B)	**64.**	(C)	**79.**	(D)
50.	(C)	**65.**	(C)	**80.**	(B)
51.	(A)	**66.**	(B)	**81.**	(A)
52.	(B)	**67.**	(D)	**82.**	(B)
53.	(A)	**68.**	(B)	**83.**	(A)
54.	(D)	**69.**	(B)	**84.**	(D)
55.	(A)	**70.**	(D)	**85.**	(B)
56.	(D)	**71.**	(C)	**86.**	(B)
57.	(A)	**72.**	(B)	**87.**	(D)
58.	(D)	**73.**	(C)	**88.**	(C)
59.	(A)	**74.**	(A)	**89.**	(A)
60.	(C)	**75.**	(C)	**90.**	(B)

HINTS & SOLUTIONS

46. (A)
Zeroes after non zero digits are not significant.

47. (B)
FACT

48. (A)
Molecular Formula of Glucose
$\rightarrow$ $C_6H_{12}O_6$
E.F. $\rightarrow$ simplest formula $\rightarrow CH_2O$

49. (B)
$\Rightarrow \quad \frac{10^{-12}}{10^{-3}} = 10^{-9}\,\text{mm}$

50. (C)
Two Elements $\rightarrow$ Many compounds

51. (A)
Acc. to law of conservation of mass
Total mass of Reactant = Total mass of Product

52. (B)
FACT

53. (A)
$$E_M = \frac{W_M}{W_{O_2}} \times 8 = \frac{32}{48} \times 8 = 5.3$$

54. (D)
FACT

55. (A)
$$M = \frac{\eta}{W_A(kg)} \Rightarrow \text{mol kg}^{-1}$$

56. (D)
$$M = \frac{\eta_B}{V_{(L)}}$$
$$M = \frac{1\times1000}{40\times250} \Rightarrow \frac{4}{40} \Rightarrow \frac{1}{10} = 0.1M$$

57. (A)
$$\underset{50g}{MgCO_3} \rightarrow MgO + \underset{11g}{CO_2}$$
$$\frac{1}{1}\eta MgCO_3 \times \frac{x}{100} = \frac{1}{1}\eta CO_2$$
$$\frac{50}{84} \times \frac{x}{100} = \frac{11}{44}$$
% Purity $\rightarrow$ x = 42%

58. (D)
$M_1V_1 = M_2V_2$
$$M_1 = \frac{10xd}{M\omega}$$
V_1 = ?

59. (A)
$$E_M = \frac{M}{\text{n - factor}}$$
$$2NaOH + \underset{n=2}{H_3PO_3} \rightarrow \underset{+2H_2O}{Na_2HPO_3}$$
n-factor = 2 – 1 = 1
↳ no. of transferable h + ion.

60. (C)
$$\frac{N_O}{N_A} = \frac{V_L}{22.4}$$

61. (D)

62. (D)
$$A \rightarrow N_O = \frac{43}{16} \times 1 \times N_A = 3N$$
$$B \rightarrow N_O = \frac{48}{32} \times N_A \times 2 = 3N_A$$
$$C \rightarrow N_O = \frac{48}{48} \times N_A \times 3 = 3N_A$$
$$D \rightarrow n = \frac{N_O}{N_A} \qquad 5 = \frac{N_O}{N_A}$$
$$N_O = 5 \times NA \times 2 = 10NA$$

63. (A)
FACT

64. **(C)**

$Mg + 2HCl \rightarrow MgCl_2 + H_2$

$\omega = ?$ $\quad V_L = 11.2$

$$\frac{1}{1}nmg = \frac{1}{1}nH_2$$

$$\frac{\omega}{24} = \frac{11.2}{22.4}$$

$\omega = 12g$

65. **(C)**

Two Elements $\rightarrow$ many compounds

66. **(B)**

$$X_B = \frac{m}{55.55 + m}$$

67. **(D)**

$$AAM = \frac{40\times100 + 102\times60}{100} = 101.2$$

68. **(B)**

Number of molecules of O_2

$$= \frac{\omega}{32}\times N_A$$

Number of molecules of H_2

$$= \frac{\omega}{2}\times N_A$$

$$= \frac{2}{32} = 1:16$$

69. **(B)**

$$\underset{200g}{2KClO_3} \rightarrow 2KCl + \underset{48}{3O_2}$$

$$\frac{1}{2}nKClO_3 \times \frac{x}{100} = \frac{1}{3}n_{O_2}$$

$$\frac{1}{2}\times\frac{200}{122.5}\times\frac{x}{100} = \frac{1}{3}\times\frac{48}{32}$$

$x = 61.25\ \%$

70. **(D)**

g-atom $\Rightarrow$ mole

$$n = \frac{\omega}{A.M.} = \frac{2.3\times1000}{23} = 100$$

71. **(C)**

$$\frac{N_O}{N_A} = \frac{\omega}{MM}$$

$$\omega = \frac{1}{N_A}\times34g$$

72. **(B)**

$Mg + 2HCl \rightarrow MgCl_2 + H_2$

12g

$$\frac{1}{1}nMg = \frac{1}{1}nH_2$$

$$\frac{12}{24} = \frac{V_L}{22.4}$$

$V = 11.2L$

73. **(C)**

$$\frac{n_{H_2}}{n_{O_2}} = \frac{\frac{\omega}{2}}{\frac{\omega}{32}} = \frac{32}{2} \Rightarrow 16:1$$

74. **(A)**

$$\frac{N_O}{N_A} = \frac{\omega}{MM}$$

$$N_O = \frac{50}{100}\times N_A \times 1 \Rightarrow 0.5\ NA$$

75. **(C)**

$2A + 4B \rightarrow C$

8mole $\quad$ 12mole

$\frac{1}{2}n_A \quad \frac{1}{4}n_B$

$\frac{1}{2}\times8 \quad \frac{1}{4}\times12$

$+4 \quad 3 = \frac{1}{1}n_C$

$\downarrow$

L_OR_O

$n_C = 3$

76. **(A)**

$$M = \frac{n_B}{V_{(L)}}$$

$$n_B = \frac{N_O}{N_A}$$

77. **(D)**

$$\frac{N_O}{N_A} = \frac{\omega}{A.M_O}$$

$$N_O = \frac{12}{12} \times N_A \times 6 \Rightarrow 6N_A$$

78. (C)

$$M = \frac{n_B}{V_{(L)}}$$

$$n_{C_6H_{12}O_6} = M \times V_{(L)}$$

$$n = \frac{N_O}{N_A}$$

79. (D)

$$E_M = \frac{\omega_M}{\omega_{O_2}} \times 8$$

$$= \frac{9}{1} \times 8 = 72g$$

$$\omega_M + \omega_{O_2} = \omega_{MO}$$

80. (B)

$$n = \frac{\text{Molecular Formula weight}}{\text{Emperical Formula weight}}$$

M.F. = n × E.F.

81. (A)

$H_2SO_4 + NaOH \rightarrow Na_2SO_4 + H_2O$

$$E_M = \frac{MM_{H_2SO_4}}{n-f} = \frac{98}{2} = 49$$

82. (B)

$$\%\ O = \frac{\text{At mass of O} \times x \times 100}{\text{M. cut of } H_2O_2}$$

83. (A)

$$n_{H_2SO_4} = \frac{\omega}{MM} = \frac{98}{98} = 1$$

84. (D)

$$\frac{V_L}{22.4} = \frac{N_O}{N_A}$$

$$V_L = \frac{6.02 \times 10^{24}}{6.02 \times 10^{23}} \times 22.4 = 224 \text{ L}$$

85. (B)

$$\frac{N_O}{N_A} = \frac{\omega}{MM}$$

86. (B)

$$n = \frac{N_O}{N_A}$$

87. (D)

$$\%N = \frac{14}{46} \times 1 \times 100 \quad \ldots(1)$$

$$\%N = \frac{\omega_M}{\omega_{NO_2}} \times 100 \quad \ldots(2)$$

(1) = (2)

$$\frac{14}{46} \times 100 = \frac{\omega_N}{4.6} \times 100$$

= 1.4 g

88. (C)

$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6\ H_2O$

$$\frac{1}{2} n_{C_2H_6} = \frac{1}{7} n_{O_2}$$

$$\frac{90}{30} = \frac{1}{7} n_{O_2}$$

$$n_{O_2} = 10.5$$

89. (A)

$4Al + 3O_2 \rightarrow 2Al_2O_3$

$$\frac{1}{4} \times \frac{27}{27} \quad \frac{32}{16}$$

L$_O$ R. $\frac{1}{4} = \frac{1}{2} n_{Al_2O_3} \Rightarrow \frac{1}{2}$

90. (B)

$$\frac{N_O}{N_A} = \frac{V}{22.4}$$

$$N_O = \frac{224 \times N_A \times 10 \times 2}{22.4 \times 1000} = \frac{N_A}{50}$$

Note - If you have any query/issue

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