NEET | AIPMT 2020-1988

ASSIGNMENT-4 Concentration-I Some Basic Concepts of Chemistry

67. 6.02×10^{20} molecules of urea are present in 100 mL of its solution. The concentration of solution is

[NEET 2013]

(a) 0.02 M (b) 0.01 M
(c) 0.001 M (d) 0.1 M

Ans. *(b)*

68. Which one of the following modes of expressing concentration is independent of temperature?

[CBSE AIPMT 1995, 92]

(a) Molarity (b) Molality
(c) Formality (d) Normality

Ans. *(b)*

69. 25.3 g of sodium carbonate, Na_2CO_3 is dissolved in enough water to make 250 mL of solution. If sodium carbonate dissociates completely, molar concentration of sodium ion, Na^+ and carbonate ion, CO_3^{2-} are respectively (Molar mass of $Na_2CO_3 = 106\ g\ mol^{-1}$)

[CBSE AIPMT 2010]

(a) 0.955 M and 1.910 M
(b) 1.910 M and 0.955 M
(c) 1.90 M and 1.910 M
(d) 0.477 M and 0.477 M

Ans. *(b)*

70. How many grams of concentrated nitric acid solution should be used to prepare 250 mL of 2.0 M HNO_3? The concentrated acid is 70% HNO_3.

[NEET 2013]

(a) 45.0 g conc. HNO_3
(b) 90.0 g conc. HNO_3
(c) 70.0 g conc. HNO_3
(d) 54.0 g conc. HNO_3

Ans. *(a)*

71. What is the mole fraction of the solute in a 1.00 m aqueous solution?

[CBSE AIPMT 2015]

(a) 0.177 (b) 1.770
(c) 0.0354 (d) 0.0177

Ans. *(d)*

72. Concentrated aqueous sulphuric acid is 98% H_2SO_4 by mass and has a density of 1.80 g mL^{-1}. Volume of acid required to make one litre of 0.1 M H_2SO_4 solution is

[CBSE AIPMT 2007]

(a) 11.10 mL (b) 16.65 mL
(c) 22.20 mL (d) 5.55 mL

73. The mole fraction of the solute in one molal aqueous solution is

[CBSE AIPMT 2005]

(a) 0.027 (b) 0.036
(c) 0.018 (d) 0.009

Ans. *(c)*

74. 1 M and 2.5 L NaOH solution is mixed with another 0.5 M and 3 L NaOH solution. Then, find out the molarity of resultant solution.

[CBSE AIPMT 2002]

(a) 0.80 M (b) 1.0 M
(c) 0.73 M (d) 0.50 M

Ans. *(c)*

75. Molarity of liquid HCl, if density of solution is 1.17 g/cc is

[CBSE AIPMT 2001]

(a) 36.5 (b) 18.25
(c) 32.05 (d) 42.10

Ans. *(c)*

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76. The molar concentration of 20 g of NaOH present in 5 litre of solution is : *[1998]*

(a) 0.1 moles/litre (b) 0.2 moles/litre

(c) 1.0 moles/litre (d) 2.0 moles/litre

77. Temperature does not affect : *[1997, 2001]*

(a) Molality (b) Formality

(c) Molarity (d) Normality

78. The molarity of H_2SO_4 solution, which has a density 1.84 g/cc. at 35° C and contains 98% by weight, is : *[2001]*

(a) 1.84 M (b) 18.4 M

(c) 20.6 M (d) 24.5 M

79. A solution is prepared by dissolving 24.5 g of sodium hydroxide in distilled water to give 1 L solution. The molarity of NaOH in the solution is *[2010]*

(a) 0.2450 M (b) 0.6125 M

(c) 0.9800 M (d) 1.6326 M

80. 0.4 moles of HCl and 0.2 moles of $CaCl_2$ were dissolved in water to have 500 mL of solution, the molarity of Cl^- ion is: *[2000]*

(a) 0.8 M (b) 1.6 M

(c) 1.2 M (d) 10.0 M

81. **Assertion :** One molal aqueous solution of glucose contains 180g of glucose in 1 kg water.
Reason : Solution containing one mole of solute in 1000 g of solvent is called one molal solution. *[2008]*

(a) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.

(b) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.

(c) If the Assertion is correct but Reason is incorrect.

(d) If both the Assertion and Reason are incorrect.

(e) If the Assertion is incorrect but the Reason is correct.

Recent NEET [2025-2020]

82. Match **List - I** with **List - II** (2025)

List-I (Example)		**List-II (Type of Solution)**
A. Humidity	I.	Solid in solid
B. Alloys	II.	Liquid in gas
C. Amalgams	III.	Solid in gas
D. Smoke	IV.	Liquid in solid

Choose the **correct** answer from the options given below :

(1) A-III, B-II, C-I, D-IV

(2) A-II, B-IV, C-I, D-III

(3) A-II, B-I, C-IV, D-III

(4) A-III, B-I, C-IV, D-II

83. In one molal solution that contains 0.5 mole of a solute, there is (2020)

(1) 1000 g of solvent (2) 500 mL of solvent

(3) 500 g of solvent (4) 100 mL of solvent

Answer (3)