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**Max Time : 1 hr** **SOLUTION Max Marks : 20**

**CODE : A**

1. Which of the following is dependent on temperature?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Molality | b) Molarity | c) Mole fraction | d) Weight percentage |

1. 6.02 x 1020 molecules of urea are present in 100 ml of its solution. The concentration of the solution is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0.002 M | b) 0.01 M | c) 0.001 M | d) 0.1 M |

1. Which of the following units is useful in relating concentration of solution with its vapour pressure?

|  |  |  |  |
| --- | --- | --- | --- |
| a) mole fraction | b) parts per million | c) mass percentage | d) molality |

1. At equilibrium the rate of dissolution of the solid solute in a volatile liquid solvent is

|  |  |
| --- | --- |
| a) less than the rate of crystallisation | b) greater than the rate of crystallisation |
| c) equal to the rate of crystallisation | d) zero |

1. Maximum amount of a solid solute that can be dissolved in a specified amount of a given liquid solvent does not depend upon …………. .

|  |  |  |  |
| --- | --- | --- | --- |
| a) Temperature | b) Nature of solute | c) Pressure | d) Nature of solvent |

1. Low concentration of oxygen in the blood and tissues of people living at high altitude is due to .

a) Low temperature

b) Low atmospheric pressure

c) High atmospheric pressure

d) both low temperature and high atmospheric pressure

1. The value of Henry’s constant KH is ……………….. .

|  |  |
| --- | --- |
| a) greater for gases with higher solubility | b) greater for gases with lower solubility |
| c) constant for all gases | d) not related to the solubility of gases |

1. Colligative properties depend on ………….. .

a) The nature of the solute particles dissolved in solution.

b) The number of solute particles in solution.

c) The physical properties of the solute particles dissolved in solution.

d) the nature of solvent particles.

1. Which of the following aqueous solutions should have the highest boiling point?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1.0 M NaOH | b) 10 M Na2SO4 | c) 1.0 M NH4NO3 | d) 1.0 M KNO3 |

1. The unit of ebullioscopic constant is ………….. .

|  |  |
| --- | --- |
| a) K kg mol-1 or K (molality)-1 | b) mol kg K-1 or K–1 (molality) |
| c) kg mol-1 K-1 or K–1 (molality)-1 | d) K mol kg-1 or K (molality) |

1. An unripe mango placed in a concentrated salt solution to prepare pickle, shrivels because ….… .

|  |  |
| --- | --- |
| a) It gains water due to osmosis | b) It loses water due to reverse osmosis |
| c) It gains water due to reverse osmosis | d) It loses water due to osmosis |

1. Value of Henry’s constant KH ……………….. .

|  |  |
| --- | --- |
| a) increase with increase in temperature | b) decrease with increase in temperature |
| c) remains constant | d) first increases, then decreases |

1. The values of van’t Hoff factors for KCl , NaCl and K2SO4 respectively, are ……………….. .

|  |  |  |  |
| --- | --- | --- | --- |
| a) 2 , 2 and 2 | b) 2 , 2 and 3 | c) 1 , 1 and 2 | d) 1 , 1 and 1 |

1. At a given temperature, osmotic pressure of a concentrated solution of a substance ………………. .

a) is higher than that of a dilute solution

b) is lower than that of a dilute solution

c) is same as that of a dilute solution

d) cannot be compared with osmotic pressure of dilute solution

1. Benzoic acid undergoes dimerization in benzene solution. The van’t Hoff factor (i) is related to the degree of association ‘x’ of the acid as

|  |  |  |  |
| --- | --- | --- | --- |
| a) i = ( 1 – x ) | b) i = ( 1 + x ) | c) i = ( 1 – x/2 ) | d) i = ( 1 + x/2 ) |

1. Which of the following is not a substitutional solid ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Brass | b) Bronze | c) Steel | d) Monel metal |

1. A solution of urea (mol. mass 56 g mol-1) boils at 100.18 ˚C at the atmospheric pressure. If Kf and Kb for water are 1.86 and 0.512 K kg mol-1 respectively, the above solution will freeze at

|  |  |  |  |
| --- | --- | --- | --- |
| a) – 6.54 ˚C | b) – 0.654 ˚C | c) 6.54 ˚C | d) 0.654 ˚C |

1. For an ideal solution, the correct option is

a) mix G = 0 at constant temperature and pressure

b) mix S = 0 at constant temperature and pressure

c) mix V 0 at constant temperature and pressure

d) mix H= 0 at constant temperature and pressure

1. A 0.004 M solution of Na2SO4 is isotonic with a 0.01 M solution of glucose at the same temperature. The apparent degree of dissociation of Na2SO4 is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 25 % | b) 50 % | c) 75 % | d) 85 % |

1. KH value for Ar (g) , CO2 (g) , HCHO (g) and CH4 (g) are 40.39 , 1.67 , 1.83 x 10-5 and 0.413 respectively. Arrange these gases in the order of their increasing solubility .

|  |  |
| --- | --- |
| a) HCHO < CH4 < CO2 < Ar | b) HCHO < CO2 < CH4 < Ar |
| c) Ar < CO2 < CH4 < HCHO | d) Ar < CH4 < CO2 < HCHO |

**Answers**

**SOLUTION [CLASS = 12th ]**

**CODE : A**

1. b

2. b

3. a

4. c

5. c

6. b

7. b

8. b

9. b

10. a

11. d

12. a

13. b

14. a

15. c

16. c

17. b

18. d

19. c

20. c