**Tarun Arora**  **R.L. Institute M: 9416974837**

**Max Time : 1 hr** **CHEMISTRY TEST - 1 Max Marks : 40**

**Class = 12th CODE : A**

1. A crystalline structure has radius ratio ( / ) in the range of 0.225 – 0.414. The coordination number and arrangements of anions around the cations are

|  |  |  |  |
| --- | --- | --- | --- |
| a) 8 , cubic | b) 4 , tetrahedral | c) 3, plane triangular | d) 6 , octahedral |

1. In amalgam of mercury with sodium, solvent is

|  |  |  |  |
| --- | --- | --- | --- |
| a) amalgam | b) mercury | c) sodium | d) none of these |

1. Which of the following shows nitrogen in its increasing order of oxidation number ?

|  |  |
| --- | --- |
| a) < N2O < NO < NO2 < | b) < NO < N2O < NO2 < |
| c) N2O < NO < NO2 < < | d) < N2O < NO2 < < NO |

1. DNA and RNA contain four bases each. Which of the following bases is not present in RNA

|  |  |  |  |
| --- | --- | --- | --- |
| a) Adenine | b) Thymine | c) Uracil | d) Cytosine |

1. Which of the following acids is a vitamin

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ascorbic acid | b) Saccharic acid | c) Adipic acid | d) Aspartic acid |

1. Monoclinic sulphur is an example of monoclinic crystal system. What are the characteristics of the crystal system ?

|  |  |
| --- | --- |
| a) a b c , = = = 90˚ | b) a b c , = = 90˚ , 90˚ |
| c) a = b c , = = = 90˚ | d) a b c , 90˚ |

1. A compound is formed by two elements Y and Z. The element Z forms ccp and atom Y occupy 1/3rd of the tetrahedral voids. The formula of the compound is

|  |  |  |  |
| --- | --- | --- | --- |
| a) YZ | b) Y2Z | c) Y­2Z3 | d) YZ3 |

1. Which of the following statements is not correct ?

a) 5% aqueous solution of NaCl and KCl are said to be isomolar.

b) 1 M sucrose solution and 1 M glucose solution are isotonic.

c) Molecular mass of acetic acid and benzoic acid is higher than normal mass in cryoscopic methods.

d) For the same solution, = .

1. In a cyclotrimetaphosphoric acid molecule, how many single and double bonds are present?

|  |  |
| --- | --- |
| a) 3 double bonds ; 9 single bonds | b) 3 double bonds ; 12 single bonds |
| c) 6 double bonds ; 6 single bonds | d) 0 double bonds ; 12 single bond |

1. In NaCl structure ,

a) only tetrahedral sites are occupied.

b) only octahedral sites are occupied.

c) all octahedral and tetrahedral sites are occupied.

d) neither octahedral nor tetrahedral sites are occupied.

1. An element crystallizes in a structure having a fcc unit cell of edge 200 pm. If 200 g of this element contains 24 x 1023 atoms then its density is

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| a) 8.117 g /cm3 | b) 400 g /cm3 | c) 41.66 g /cm3 | d) 313.9 g /cm3 |

1. Which compound can exist in a dipolar (zwitter ion) structure ?

|  |  |
| --- | --- |
| a) (CH3)2CHCH(NH2)COOH | b) HOOCCH2CH2COCOOH |
| c) C6H5CH2CH(N = CH2)COOH | d) C6H5CONHCH2COOH |

1. In a Schottky defect,

a) electrons are trapped in a lattice site

b) some extra cations are present in interstitial spaces.

c) an ion moves to interstitial position between the lattice points.

d) some lattice sites are vacant.

1. The law which indicates the relationship between solubility of a gas in liquid and pressure is \_\_\_\_\_\_\_\_\_ .

|  |  |  |  |
| --- | --- | --- | --- |
| a) Lowering of V.P | b) Raoult’s law | c) Van’t Hoff law | d) Henry’s law |

1. An electron trapped in an anion site in a crystal is called ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Interstitial defect | b) Schottky defect | c) F – centre | d) Frenkel defect |

1. Which of the following will have metal deficiency defect ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) FeO | b) ZnO | c) NaCl | d) KCl |

1. Benedict’s solution is used to identify

|  |  |  |  |
| --- | --- | --- | --- |
| a) reducing sugars | b) Lipids | c) Polysaccharide | d) Proteins |

1. Which of the following is a network solid ?

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| --- | --- | --- | --- |
| a) Diamond | b) | c) H2 | d) I2 |

1. The percentage of empty space in a bcc arrangement is

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| --- | --- | --- | --- |
| a) 26 | b) 32 | c) 74 | d) 68 |

1. What will be the molality of a solution of glucose in water which is 10% w/w ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 0.668 m | b) 1.623 m | c) 0.617 m | d) 0.01 m |

1. What weight of glycerol should be added to 600 g of water in order to lower its freezing point by 10˚C ? ( Kf = 1.86 ˚C/m )

|  |  |  |  |
| --- | --- | --- | --- |
| a) 426 g | b) 310 g | c) 297 g | d) 496 g |

1. For carrying reverse osmosis for desalination of water the material used for making semipermeable membrane is

|  |  |  |  |
| --- | --- | --- | --- |
| a) parchment paper | b) cellulose acetate | c) cell membrane | d) potassium nitrate |

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

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

1. The unit of Ebullioscopic constant is \_\_\_\_\_\_\_\_\_\_ .

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

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

a) is higher than that at 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. Nitrogen combines with metals to form

|  |  |  |  |
| --- | --- | --- | --- |
| a) nitrosyl chloride | b) nitrites | c) nitrates | d) nitrides |

1. The correct order of acidic strength is

|  |  |  |  |
| --- | --- | --- | --- |
| a) Cl2O7 > SO2 > P4O10 | b) Na2O > MgO > Al2O3 | c) K2O > CaO > MgO | d) CO2 > N2O5 > SO3 |

1. Which of the following pairs of ions are isoelectronic and isostructural ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) , | b) , | c) , | d) , |

1. An element crystalizes in bcc lattice has an edge length of 500 pm. If its density is 4 g/cm3 , the atomic mass of the element (in g/mol) is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 150 | b) 250 | c) 125 | d) 100 |

1. Maximum covalency of nitrogen is

|  |  |  |  |
| --- | --- | --- | --- |
| a) + 1 | b) - 3 | c) + 5 | d) + 3 |

1. In solid state PCl5 is a \_\_\_\_\_\_\_\_

a) covalent bond

b) octahedral void

c) ionic solid with [PCl4] + tetrahedral and [PCl6] – octahedral

d) ionic solid with [PCl6] + octahedral and [PCl4] – tetrahedral

1. Which of the following is an example of an aldopentose ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Fructose | b) Erythrose | c) D – Ribose | d) Glyceraldehyde |

1. Which one of the following amino acids can be synthesized in the body ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Valine | b) Alanine | c) Histidine | d) Lysine |

1. The decreasing order of boiling points of the following hydrides is

|  |  |
| --- | --- |
| a) NH3 > SbH3 > AsH3 > PH3 | b) SbH3 > NH3 > AsH3 > PH3 |
| c) PH3 > AsH3 > SbH3 > NH3 | d) SbH3 > AsH3 > PH3 > NH3 |

1. The number of amino acids required for protein synthesis is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 25 | b) 10 | c) 20 | d) 100 |

1. Which of the following is an acidic amino acid ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Glycine | b) Valine | c) Leucine | d) Glutamic acid |

1. H2S is a toxic gas used in qualitative analysis. If solubility of H2S in water at STP is 0.195 m, what is the value of KH ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 192 bar | b) 282 bar | c) 69.16 bar | d) 0.0263 bar |

1. In fibrous protein, polypeptide chain are held together by

|  |  |
| --- | --- |
| a) electrostatic forces of attraction | b) van der waals forces |
| c) covalent bonds | d) hydrogen bonds |

1. The density and edge length values for a crystalline element with fcc lattice are 10 g /cm3 and 400 pm, respectively. The number of units cells in 32 g of this crystal is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 5 x 1023 | b) 8 x 1022 | c) 8 x 1023 | d) 5 x 1022 |

1. Which of the following reactions of glucose can be explained only by its cyclic structure ?

a) Glucose form pentaacetate.

b) Pentaacetate of glucose does not react with hydroxylamine.

c) Glucose is oxidised by nitric acid to gluconic acid .

d) Glucose react with hydroxylamine to form an oxime.

**Tarun Arora**  **R.L. Institute M: 9416974837**

**Max Time : 1 hr** **CHEMISTRY TEST - 1 Max Marks : 40**

**Class = 12th CODE : B**

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

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