****

**PERIODIC TEST**

**GRADE – XII MARK - 40**

**SUBJECT – CHEMISTRY TIME – 1 hr 30 mins**

**GENERAL INSTRUCTIONS:**

1. All Questions are compulsory.
2. Question number 1 to 10 carry 1 mark.
3. Question number 11 to 14 carry 2 marks.
4. Question number 15 to 18 carry 3 marks.
5. Question number 19 and 20 carry 5 marks.

1. The pressure that a single component in a gaseous mixture would exert if it existed alone in the same volume as the mixture and at the same temperature as the mixture is referred to as.

a) Absolute pressure

b) Partial pressure

c) Total pressure of a gas mixture

d) None of the above

2. When two perfect solutions with volume V each are combined, What is the volume of the solution as a result?

a) V

b) 2V

c) Greater than 2V

d) Less than 2V

3. What is van’t Hoff factor in K4[Fe(CN)6]?

4. **What is the shape of [Fe(CO)5]?**

5. 15 ppm by mass= --------- (w/w %)

6. Give the IUPAC nomenclature of  [Co(NH3)4(H2O)Br](NO3)2]

7. Ammonia in water and Fluorine in water will not obey Henry’s Law. Why?

8. The characteristics shared by the species CO, CN-, and NO+ is

a. isoelectric b. anionic ligands c. all are sigma donor and pi acceptor

d. none of these

9. Which one of the following compounds will exhibit linkage isomerism?

a.[Pt(NH3)2Cl NO2] b.[Co (NH3)2 NO2 ]Cl2  c.[Co (NH3)4Cl2]Cl

d.[Co(en)2Cl2]Cl

10. Which of the following cannot act as a chelating agent?

a.HC(CH2CH2NH2)3 b.CH3NHCH2CH2CH3 c.N(CH2CH2NH2)3 d.H2NCH2CH2CH2NH2

11. Define the following:

a. Coordination isomerism

b. Hypertonic solution

12. 0.90g of a non – electrolyte was dissolved in 87.90g of benzene. This raised the boiling point of benzene by 0.250 C. If the molecular mass of non – electrolyte is 103.0 g/mol, calculate the molal elevation constant for benzene?

13. Show graphically the depression in freezing point on adding a non- volatile solute?

**(OR)**

**The oxidation number of cobalt in**K[Co(CO)4] **is**

14. How are the various colligative properties modified after consideration of van’t Hoff factor?

15. **A solution of [**Ni **(**H2O)6]2+ **is green but a solution of [**Ni(CN4)6]2- **is colourless. Explain.**

16. **Which isomerism is shown by a compound having ambidentate ligand? Give example.**

17. **Draw figure to show the splitting of d orbitals in an octahedral crystal field.**

18. **Name two ways by which vapour pressure of a liquid can be lowered.**

**(OR)**

**Calculate the osmotic pressure of 0.25 M solution of urea at** 370 C**.**

**R = 0.083 L bar/mol/k.**

19. **Write the formulas for the following coordination compounds:  
(i) Tetraamminediaquacobalt (III) chloride  
(ii) Potassium tetracyanonickelate (II)  
(iii) Tris(ethane-1,2-diamine) chromium(III) chloride  
(iv) Amminebromidochloridonitrito-N-platinate (II)  
(v) Dichloridobis(ethane-1,2-diamine)platinum(IV) nitrate**

20. [Fe(H2O)6]3+ **is strongly paramagnetic whereas**[Fe(CN6)]3- **is weakly paramagnetic. Explain.**