

D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1**SEMESTER EXAMINATIONS****NOVEMBER - 2018****15CCH5A****INORGANIC CHEMISTRY****Time : 3 Hours****Max. Marks : 75****SECTION – A (10 x 2 = 20)****Answer ALL the questions.**

1. Define Coordination number.
2. Give any two examples for linkage isomerism.
3. Calculate the spin only magnetic moment for $K_4[Fe(CN)_6]$.
4. Calculate the CFSE for $[Ti(H_2O)_6]^{3+}$.
5. Write the structure of Ni - DMG complex.
6. Give an example for mononuclear carbonyls and binuclear carbonyls.
7. What is meant by ore dressing?
8. Give the uses of TiO_2 .
9. In what ways do actinides differ from lanthanides and why?
10. How is UF_6 prepared?

SECTION – B (5 x 5 = 25)**Answer any FIVE of the following questions.**

11. Explain the effect of chelation.
12. Draw the possible isomers of $[Co(en)_2Cl_2]^+$.
13. Discuss the postulates of Werner's theory.
14. Discuss the structure of $K_4[Fe(CN)_6]$ on the basis of valence bond theory.
15. Write the comparison between VBT and CFT.
16. Explain the gravity separation method of ore dressing and froath floatation process with suitable example.
17. Explain the cause of lanthanide contraction.
18. Discuss the magnetic properties of lanthanides.

SECTION – C (3 x 10 = 30)**Answer ALL the questions.**

19. (a) Write down the IUPAC names of the following.

- (i) $[(Co(NH_3)_3(NO_2)(Cl)(CN)]$
- (ii) $[Co(Cl)(ONO)(en)_2]^+$
- (iii) $K_3[Fe(CN)_6]$
- (iv) $[Pt(NH_3)_2Cl_4]$
- (v) $[Cu(NH_3)_4]SO_4$

(Or)

(b) (i) Describe the crystal field splitting of d orbitals in octahedral complexes.

(ii) Calculate the EAN of Pd for $[\text{Pd}(\text{NH}_3)_6]^{4+}$ complex.

(7+3)

20. (a) (i) What are the applications of coordination compounds in qualitative and quantitative analysis?

(ii) Describe the structure of Manganese Carbonyl.

(5+5)

(Or)

(b) Explain the characteristics of d - block elements.

21. (a) Explain the preparation, properties and uses of V_2O_5 and $(\text{NH}_4)_2\text{MoO}_4$.

(Or)

(b) What are the ores of titanium? How is titanium extracted from its ore?

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