

**SUBJECT CODE NO:- B-2013**  
**FACULTY OF SCIENCE**  
**B.Sc. S.Y (Sem-IV) Examination March/April 2018**  
**Chemistry Paper-X**  
**Inorganic Chemistry**

[Time: 1:30 Hours]

[Max. Marks: 50]

Please check whether you have got the right question paper.

- N.B 1) All questions are compulsory.
- Q.1 a) Give electronic configuration of first transition series elements. 10  
 b) What are isomerism? Explain structural isomerism of coordination compounds. 10
- OR**
- c) What are Actinides? Explain oxidation state of Actinides. 10  
 d) Describe the precipitation reaction and complex formation reaction in liq.  $\text{SO}_2$  10
- Q.2 a) Explain lanthanide contraction and give it's consequences. 10  
 b) Describe the concept of acid-base according to Arrhenius theory. Give it's merits and demerits. 10
- OR**
- c) Write a short note on (any four) 20  
 1) Ionization potential of first transition series.  
 2) Types of ligands  
 3) Ionic radii of lanthanides  
 4) Separation of NP from Uranium  
 5) Solvent system of acid-base  
 6) Precipitation reaction in liq.  $\text{NH}_3$
- Q.3 Multiple choice questions. 10  
 1) Which of the following ion has smallest radii?  
 a)  $\text{Mn}^{+2}$   
 b)  $\text{Ni}^{+2}$   
 c)  $\text{Ti}^{+2}$   
 d)  $\text{V}^{+2}$   
 2) How many ions are produced from  $[\text{Co}(\text{NH}_3)_5 \text{Cl}] \text{Cl}_2$  in solution?  
 a) 6  
 b) 4  
 c) 3  
 d) 2  
 3) Common oxidation state of the lanthanides is  
 a) +2  
 b) +4  
 c) +3  
 d) +6

- 4) Electronic configuration of Actinium is
- $[R_n]6d'7s^2$
  - $[R_n]5f'6d'7s^2$
  - $[R_n]5f^26d'7s^2$
  - $[R_n]5f^76d^07s^2$
- 5) Which of the following is non protic solvent.
- $H_2O$
  - $CH_3COOH$
  - $H_2SO_4$
  - $SO_2$
- 6) Which of the following is lewis base.
- $HCl$
  - $H_2O$
  - $N^+H_4$
  - $CH_4$
- 7) Which of the following ion has the highest magnetic moment
- $Zn^{+2}$
  - $Ti^{+3}$
  - $Sc^{+3}$
  - $Mn^{+2}$
- 8) The IUPAC name of  $K_3[Fe(CN)_6]$
- Potassium hexacyano ferrate (II)
  - Potassium hexacyano ferrate (III)
  - Potassium hexacyano ion (II)
  - Potassium hexacyano ion (III)
- 9) Which of the following is not a actinide element.
- Cerium
  - Thorium
  - Uranium
  - Curium
- 10) The conjugate acid of  $NH_2^-$  is
- $NH_3$
  - $NH_2OH$
  - $NH_4OH$
  - $NH_4^+$