

# C.U.SHAH UNIVERSITY

## Summer Examination-2019

Subject Name: Inorganic Chemistry-II

Subject Code: 4SC04ICH1

Branch: B.Sc. (Chemistry, Physics)

Semester: 4

Date: 22/04/2019

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

**Q-1 Attempt the following questions: (14)**

- What is complex ion? (1)
- What is double salt? Give example. (1)
- Define chelate. (1)
- Give an example of bidentate ligand. (1)
- Give an example of geometrical isomerism in 6 coordinated complex. (1)
- Coordination number of Fe in  $[\text{FeCl}_2(\text{CO})_2]$  is.....? (1)
- Why transition element's compounds are colored? (1)
- Electronic configuration of  $\text{Cr}^{+2}$ . (1)
- Define transition elements. (1)
- Electronic configuration of  $\text{Ag}^+$ . (1)
- Which compounds are known as organometallic compounds? (1)
- What is operator? (1)
- Define Eigen function. (1)
- Give second postulate of wave mechanics. (1)

**Attempt any four questions from Q-2 to Q-8**

**Q-2 Attempt all questions (14)**

- Describe optical isomerism in 4 and 6 coordinated complexes. (10)
- Give IUPAC name of below complexes. (4)
  - $\text{K}[\text{BF}_4]$
  - $[\text{CoCl}_2(\text{en})_2]\text{SO}_4$
  - $[\text{PdI}_2(\text{ONO})_2(\text{H}_2\text{O})_2]$
  - $[(\text{NH}_3)_5\text{Co}-\text{NH}_2-\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})]\text{Cl}_5$

**Q-3 Attempt all questions (14)**

- Describe Werner's coordination theory. (7)
- Discuss molar volumes, density and color of d-block elements. (7)

**Q-4 Attempt all questions (14)**



- a) Give name, symbol and electronic configuration of 2<sup>nd</sup> transition metal series. (7)  
b) Write note on structural isomerism. (7)
- Q-5** **Attempt all questions** (14)  
a) Give name, symbol and electronic configuration of 1<sup>st</sup> transition metal series. (7)  
b) Discuss metallic character and tendency to form complexes of d-block elements. (7)
- Q-6** **Attempt all questions** (14)  
a) Derive equation when electron in a ring. (7)  
b) Describe additional operator, multiplication operator, linear operator and commutator. (7)
- Q-7** **Attempt all questions** (14)  
a) Derive equation when electron in one dimensional box. (8)  
b) Write note on organo-lithium compound. (6)
- Q-8**  
Describe the structures of tri methyl aluminium, zeise salt and ferrocene. (14)

