

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)

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

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

Q-2 Attempt all questions (14)

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

Q-3 Attempt all questions (14)

- a) Describe Werner's coordination theory. (7)
- b) 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 2nd 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 1st 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)

