Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2020

Subject Name: Inorganic Chemistry-III

Subject Code: 4SC05ICH1 **Branch: B.Sc. (Chemistry)**

Semester : 5 **Date : 26/02/2020** **Time : 10:30 To 01:30** **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 axis of symmetry? **(1)**
b) Define symmetry operation. **(1)**
c) What is vertical plane of symmetry? **(1)**
d) Define silicones. **(1)**
e) What is cross linking? **(1)**
f) Define low nuclearity carbonyl clusters. **(1)**
g) Give any example of bi nuclear carbonyl cluster. **(1)**
h) Give conjugate acid and conjugate base for NH_3. **(1)**
i) Write HSAB principle. **(1)**
j) What do you mean by amphiprotic solvent? **(1)**
k) Is H_2O protonic solvent or not? **(1)**
l) Give full form of CFT? **(1)**
m) What is chelating ligand? **(1)**
n) What is the unit of magnetic moment μ for transition elements? **(1)**

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

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

a) Describe identity of symmetry with example. **(7)**
b) Write a note on plane of symmetry. **(7)**

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

a) Write a note on layer polymer of $(BN)_n$.. **(7)**
b) Describe silicon elastomers. **(7)**

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

a) Write Wade's rules for electron counting scheme. **(7)**
b) Find metal cluster frame work or skeletal structure of following (i) $Fe_4C(CO)_{12}]^{2-}$, (ii) $[H_3Ru_4(CO)_{12}]^-$ and (iii) $Rh_6(CO)_{16}$ **(7)**

Q-5		**Attempt all questions**	**(14)**
	a)	Define acid-base as per Arrhenius concept, Lowry-Bronsted concept and Lux-Flood concept.	**(7)**
	b)	Describe hard and soft acid-base concept.	**(7)**
Q-6		**Attempt all questions**	**(14)**
	a)	Show chemical property of Anhydrous SO_2 (Liquid SO_2).	**(7)**
	b)	Give classification of solvents.	**(7)**
Q-7		**Attempt all questions**	**(14)**
	a)	Explain Splitting of d-orbital in octahedral complex.	**(7)**
	b)	Calculate CFSE and magnetic moment of $K_3[Fe(H_2O)_6]$ and find oxidation number of Fe.	**(7)**
Q-8		**Attempt all questions**	**(14)**
	a)	Explain multiplication table for C_2V.	**(7)**
	b)	Explain Splitting of d-orbital in tetrahedral complex.	**(7)**