

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Inorganic Chemistry-III

Subject Code: 4SC05ICH1

Branch: B.Sc. (Chemistry)

Semester: 5

Date: 28/11/2018

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 symmetry? (1)
 - b) Define symmetry operation. (1)
 - c) What is vertical plane of symmetry? (1)
 - d) Define inorganic polymer. (1)
 - e) What is cross linking? (1)
 - f) Define Metal clusters. (1)
 - g) What is “Zintl ions” or “naked clusters”? (1)
 - h) Give conjugate acid and conjugate base for NH₃. (1)
 - i) Write HSAB principle. (1)
 - j) What do you mean by solvent? (1)
 - k) Is HF protonic solvent or not? (1)
 - l) Give full form of CFSE. (1)
 - m) Which one is low spin complex K₄[Fe(CN)₆] or K₄[Fe(H₂O)₆]? (1)
 - n) What is the unit of magnetic moment μ ? (1)

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

- Q-2 Attempt all questions (14)**
- a) Describe axis of symmetry with example. (7)
 - b) Write short note on center of symmetry. (7)
- Q-3 Attempt all questions (14)**
- a) Describe silicon rubber or elastomers. (7)
 - b) Write short note on layer polymer of (BN)_n. (7)
- Q-4 Attempt all questions (14)**
- a) Describe low nuclearity carbonyl cluster (LNCC). (7)
 - b) Write Wade's rules for electron counting scheme. (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 HF (Liquid HF). (7)
- b) Give general information about liquid NH₃. (7)
- Q-7** **Attempt all questions** (14)
- a) Explain Splitting of d-orbital in octahedral complex. (7)
- b) Calculate CFSE and magnetic moment of K₃[Fe(CN)₆] and find oxidation number of Fe. (7)
- Q-8** **Attempt all questions** (14)
- a) Find the symmetry elements like C_n , S_n , σ_v , σ_h and i of Ni [(Py)₄Cl₂] and XeOF₄. (7)
- b) Explain Splitting of d-orbital in tetrahedral complex. (7)

