

Enrollment No: _____

Exam Seat No: _____

C. U. SHAH UNIVERSITY

Summer Examination-2020

Subject Name: Inorganic Chemistry-I

Subject Code: 4SC03ICH1

Branch: B.Sc. (Chemistry)

Semester :3

Date: 29/02/2020

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

- a) What is electronegativity? (1)
- b) How many periods are in the periodic table? (1)
- c) Define *d*-block elements. (1)
- d) Give IUPAC name of elements have atomic number 105 and 101. (1)
- e) Which substance are called "Boranes"? (1)
- f) $3\text{BCl}_3 + 6\text{H}_2\text{O} \longrightarrow \text{A} + \text{B}$? (1)
- g) Define kinetic stability. (1)
- h) What is thermodynamic stability? (1)
- i) What is Chelate effect? (1)
- j) Give definition of lanthanides. (1)
- k) Which oxidation state shown by all the lanthanide metals? (1)
- l) What is general configuration of lanthanide? (1)
- m) How are actinides prepared? (1)
- n) Give the oxidation states of Lanthanum. (1)

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

Q-2 Discuss Electronic configuration and type of elements: *s*, *p* and *d* (14)

Q-3 Attempt all questions (14)

- a) Define inner orbital and outer orbital complexes. Describe labile and inert octahedral complexes according to CFT. (7)
- b) Discuss experimental determination of stability constant by spectrophotometric method. (7)

Q-4 Give brief note on properties of Diborane (B_2H_6). (14)



- Q-5** **Attempt all questions** **(14)**
- a) Why chelates are more stable? **(7)**
 - b) Write note on structure of Diborane. **(7)**
- Q-6** **Attempt all questions** **(14)**
- a) Discuss the magnetic property of lanthanide. **(7)**
 - b) Write a note on factors affecting on the stability of complexes. **(7)**
- Q-7** **Attempt all questions** **(14)**
- a) Write electronic configuration, name and symbol of any ten lanthanides. **(8)**
 - b) Discuss lanthanide contraction. **(6)**
- Q-8** **Attempt all questions** **(14)**
- a) Discuss about ionic radii of actinides. **(6)**
 - b) Write electronic configuration, name and symbol of any ten actinides. **(8)**

