

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C. U. SHAH UNIVERSITY

## Summer Examination-2022

**Subject Name: Inorganic Chemistry-I****Subject Code: 4SC03ICH1****Branch: B.Sc. (Chemistry)****Semester: 3****Date: 25/04/2022****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) Who gave the modern periodic law?    **(1)**
- b) Define Metallic radius    **(1)**
- c) Which elements are known as Eka-Silicon    **(1)**
- d) Give IUPAC name of elements have atomic number 104 and 109.    **(1)**
- e) Write general formulae of boron hydride    **(1)**
- f)  $B_2H_6 + \text{Heat} \rightarrow ??$     **(1)**
- g) Who gave the idea of 3c-2e bond?    **(1)**
- h) Give the equations of relation between formation constant (Kf) and the standard Gibbs free energy change.    **(1)**
- i) Full form of CFSE is.....    **(1)**
- j) Some salt of lanthanides are colored due to \_\_\_\_\_transitions.    **(1)**
- k) Which oxidation state shown by all the lanthanide metals?    **(1)**
- l) What is Lanthanides contractions?    **(1)**
- m) -----is the most important mineral containing lanthanides.    **(1)**
- n) Give the oxidation states of Cerium.    **(1)**

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

**Q-2**    Explain Electron configuration and type of elements: *s*, *p*, and *d* blocks    **(14)**

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

- a) Explain thermodynamic stability.    **(7)**
- b) Discuss experimental determination of stability constant by Job's method.    **(7)**

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

- a) Give preparation of Diborane ( $B_2H_6$ ).    **(06)**
- b) Discuss the structure of Diborane.    **(08)**



- Q-5** Explain factors affecting the stability of metal complexes (14)
- Q-6** **Attempt all questions** (14)  
a) Discuss properties of lanthanides. (7)  
b) Explain oxidation states of lanthanides. (7)
- Q-7** **Attempt all questions** (14)  
a) Write electronic configuration, name and symbol of any ten lanthanides. (8)  
b) Discuss oxidation state and color of actinides. (6)
- Q-8** **Attempt all questions** (14)  
a) Write uses of lanthanides. (6)  
b) Write electronic configuration, name and symbol of any ten actinides. (8)

