Roll No. : .....

Total No. of Questions : **11**] [Total No. of Printed Pages : **3**

CHEMSEM–101

M.Sc. (Ist Semester) Examination Dec., 2022

CHEMISTRY

Paper - CC-1

(Inorganic Chemistry–I)

*Time : **3** Hours*] [*Maximum Marks : **40***

Section–A **(Marks : 1 × 10 = 10)**

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **1** mark.

Section–B **(Marks : 3 × 5 = 15)**

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **3** marks.

Section–C **(Marks : 5 × 3 = 15)**

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **5** marks.

Section–A

1. (i) What is *dp-pp* bonds ?

   (ii) Give *one* example of reaction of covalently bonded molecules.

(iii) What is Inert Complex ?

(iv) Give *one* example of the reaction without metal ligand bond cleavage.

(v) What is Trans Effect ?

(vi) Give *one* example of redox reaction.

(vii) Write the molecular orbital configration of $[CoF_6]^{3-}$.

(viii) Give the examples of strong and weak ligand.

(ix) What is meant by Green Synthesis ?

(x) What is Green Chemistry Analysis ?

Section–B

2. Explain the shape of tri-atomic molecule on the basis of Walsh diagram.

Or

Write short note on Bent Rule.

3. Define Anation Reaction.

Or

Explain the conjugate base mechanism with example.

4. Discuss the mechanism of one electron transfer reactions.

Or

Discuss the *one* mechanism of substitution reaction in square planar complexes.

5. What is the limitations of crystal field theory ?

Or

Discuss *one* example of π-bonding in octahedral complexes.

6. Write a note on chemical and biochemical weapons.

Or

Write short note on safety rules and safe use of different material.

Section–C

7. Explain VSEPR theory with suitable examples.

8. What is Acid Hydrolysis ? Discuss the factors affecting acid hydrolysis.

9. Discuss the detail about Marcus Hush Theory.

10. Define Molecular Orbital Theory. Explain the MOT energy level diagram of $[Co(NH_3)_6]^{3+}$ complex.

11. Discuss the twelve principles of Green Chemistry.