

**CR-2481**

**M. Sc. (First Semester) Examination,**

**Nov.-Dec. 2018**

**CHEMISTRY**

**Paper : First**

**(Inorganic Chemistry-I)**

**Time Allowed : Three hours**

**Maximum Marks : 40**

Note : Attempt questions of all two sections as directed. Distribution of marks is given with sections,

Section--A'

(Short Answer Type Questions)

5x3=15

Note : Attempt all the five questions. Each question carries 03 marks.

1. Write a short note on Berry-pseudo rotation.

Or

Write a brief note on atomic inversion reaction.

2. Discuss trends in stepwise stability constant.

Or

Give two factors affecting thermodynamic stability of complexes. Also explain the reason. ;

2. Write a note on remote attack?

Or

Discuss various theories of trans effect.

4. Explain the basic assumption of molecular orbital theory (MOT).

Or

Draw the MOT diagram for square planar complex with suitable example.

5. Write a short note on Drago-Wayland equation.

Or

Give some light on acceptor number and donor number.

## Section-“B”

(Long Answer Type Questions)

5x5=25

**Note :** Attempt all the five questions. Each question carries 05 marks.

6. What is Walsh diagram? Discuss it with triatomic molecular.

Or

Explain with detail various assumptions of valence shell electron pair repulsion theory.

7. What is stability constant? How can stability constant of a complex be measured by potentiometry? Explain in detail.

Or

Discuss different types of stability constant of complexes. Establish a relation between stepwise stability constant and overall stability constant.

8. Explain with examples the inner sphere mechanism of electron transfer reactions.

Or

What is substitution reaction? Discuss the mechanism of substitution reaction in octahedral complexes.

9. What is  $\sigma$ -bonding? Discuss  $\pi$ -bonding in coordination compounds.

Or

Write short notes on :

1. Jahn Teller effect

2. Limitations of CFT

10. Discuss a brief note on theoretical basis of hardness and softness.

Or

Give an detailed account on application of concept