(b) What is zero vibrational level of ground state excited state ? 3

(c) What is lability ? 2

7. (a) What is zero-zero spectroscopy energy ? 5

(b) What is selectivity ? 4

(c) Explain metal complex sensitizers. 5

Unit IV

8. (a) Explain redox behavior of Ru(II) bipyramidal complexes. 7

(b) What are applications of redox process for catalytic purpose ? 7

9. (a) Explain mechanism of transformation of low energy reactant into high energy products. 7

(b) What are the conditions of excited states to become as redox reactant ? 7

Roll No. .....

(05/19-I)

10278

M. Sc. EXAMINATION

(For Batch 2017 & Onwards)

(Third Semester)

CHEMISTRY

CHI(H)-301

Inorganic Special–I

Time : Three Hours *Maximum Marks :* 70

Note : This paper contains nine questions and the candidates will be required to attempt *Five* questions in all. Out of nine questions *one* question will be compulsory containing eight short answer type questions covering the entire syllabus. Further there is *two* questions from each Section and the candidates will be required to attempt *one* question from each Section. All questions carry equal marks.

(Compulsory Question)

1. Attempt any *seven* parts :

   (i) Define quantum yield. **2**

   (ii) Explain flash photolysis. **2**

   (iii) What is dipole moment ? **2**

   (iv) Define excited states of metal complexes. **2**

   (v) What is difference between ground state and excited state ? **2**

   (vi) Define photo oxidation. **2**

   (vii) Define exciplex formation. **2**

   (viii) What is excited electron transfer ? **2**

Unit I

2. (a) Explain Franck Condon Principle. **7**

   (b) Explain phosphorescence and flouroscence with the help of Jablonski diagram. **7**

3. (a) What are stop flow techniques ? Explain. **7**

   (b) Explain and discuss Beer's-Lambert's law. **4**

   (c) What is life time ? Explain **3**

Unit II

4. (a) Explain charge transfer spectra of coordination complexes. Also explain electronic transition with examples. **7**

   (b) Explain kinetics of quenching and explain different types of quenching. **7**

5. What is photochemical reactions ? Explain kinetics of photochemical reaction. **14**

Unit III

6. (a) Explain the following terms :

   (i) Photo substitution **3**

   (ii) Photo oxidation **3**

   (iii) Photo reduction. **3**