

K-5/2110

7403/N

**Reaction Mechanism of Transition Metal Complexes-312
(Semester-III)**

[Time: Two Hours]

[Maximum Marks: 55]

Note: Attempt any four questions. All questions carry equal marks.

- Q.1a) Discuss the classification of reaction mechanism?. Explain with suitable examples
b) Discuss the formation of complexes from aqueous ions
c) Discuss what is the aquation and base hydrolysis. (5, 4, 4.75)
- Q.2 Briefly discuss with suitable examples i) inner sphere reactions ii) two electron transfer reactions iii) non complementary reactions (5, 4, 4.75)
- Q.3a) Briefly discuss with suitable examples associative reactions.
b) Briefly discuss Metal carbonyl scrambling, (6.75,7)
- Q.4a) Discuss the fluxionality in organometallic compounds.
b) Discuss the reactions of associative reactions of carbonyls.(6.75,7)
- Q.5a) Discuss the acid base behavior of metal atom in complexes.
b) Discuss the addition of hydrogen addition to alkenes.(6.75,7)
- Q.6 a) Discuss the HX additions
b) Discuss the cleavage of C-H bonds i.e., Alkane activation with suitable examples. (6.75,7)
- Q.7. a) What are the insertion reactions? Explain with suitable examples the insertion of carbon monoxide.
b) Discuss with suitable examples the cyclometallation reactions. (6.75,7)
- Q. 8 Discuss the following methods for calculating Stability Constants of Metal complexes
a) Bjerrum's potentiometric method (b) Polarographic Deford & Hume's method. (6.75,7)
- Q.9. Briefly discuss the Factors affecting the stability constants
(i) Statistical effect
(ii) Electrostatic effect
(iii) Chelate effect (5, 4, 4.75)