

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MSC/PRE-PHD
BRANCH: CHEMISTRY

SEMESTER : I/NA
SESSION : MO/18

SUBJECT: CH404 ORGANOMETALLIC CHEMISTRY

TIME: 3 HOURS

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Discuss the basic classification of organometallic compounds. [5]
Q.1(b) Discuss the synthesis and general characteristics of transition metal alkyls and aryls. [5]
- Q.2(a) Compare Fischer and Schrock Carbenes with reference to synthesis, structure and reactivity. [5]
Q.2(b) Give an account of Boryl complexes and N-Heterocyclic carbenes in terms of structure and bonding. [5]
- Q.3(a) Describe β elimination reaction giving its mechanism. [5]
Q.3(b) What is oxidative coupling reaction? What is the basic driving force for these reactions? [5]
- Q.4(a) What are Insertion reactions? Classify and discuss in terms of CO insertion. [5]
Q.4(b) What are fluxional organometallic compounds? Discuss their significance. [5]
- Q.5(a) What is alkene metathesis? Discuss its mechanism and applications. [5]
Q.5(b) Discuss the catalytic applications of organometallic compounds in industries. [5]

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