

- (b) Explain the mechanism of hydrosilation of unsaturated compounds by taking a suitable catalysts. 6

Unit IV

8. (a) Write a brief note on alkene metathesis and its application in industry. 6
- (b) Define Wilkinson's catalyst. Write the composition of Wilkinson's catalyst and detailed mechanism for hydrogenation of alkene. 8
9. (a) What are phase transfer catalysts ? Describe briefly their catalytic role with the help of suitable mechanism. 2+6
- (b) Write the mechanism for the conversion of ethylene to acetone by using $\text{Pd}[\text{III}]$ as catalyst. 6

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Roll No.

(07/21-II)

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M. Sc. EXAMINATION

(For Batch 2017 & Onwards)

(Fourth Semester)

CHEMISTRY

$\text{CHI}(\text{H})$ -403

Inorganic Special-VI

Time : Three Hours

Maximum Marks : 70

Note : Attempt Five questions in all. Q. No. 1 is compulsory. Further select one question from each Section. All questions carry equal marks.

(Compulsory Question)

1. (a) Define in brief about acid-base behaviour of metal atom in complexes. 3
- (b) Write a short note on alkane activation. 3

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- (c) Draw the structure of octahedral metal halide clusters. 3
- (d) Write a short note on acetic acid synthesis. 3
- (e) Write in brief about oxidative carbonylation. 2

Unit I

2. (a) Explain the oxidative addition of hydrogen and HX by taking suitable examples. 6
- (b) Define the reductive elimination reactions with the help of suitable examples. 8
3. (a) Discuss the insertion reactions into M-H and M-C bonds by taking the examples. 8
- (b) Discuss about the organic halides addition reactions with the help of examples. 6

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Unit II

4. (a) Discuss the structure of $W_2(OiPr)_6$ and its dimer. 6
- (b) Draw and explain the structure of $[Re_2Cl_8]^{2-}$ on the basis of molecular orbital theory. 8
5. (a) What are Chevrel phases? Illustrate by suitable example. 6
- (b) Discuss the structure and bonding of $Os_7(CO)_{12}$ and $[Os_{10}C(CO)_{24}]^{2-}$. 8

Unit III

6. (a) Give the mechanism of adipic ester synthesis. 6
- (b) Explain the mechanism of Ziegler-Natta polymerization of propylene. 8
7. (a) Write the mechanism of hydrazoformylation of unsaturated compounds any suitable catalyst. 8

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P.T.O.