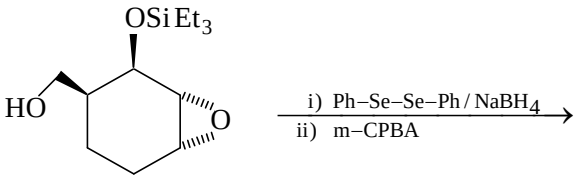
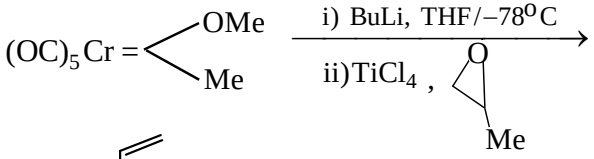
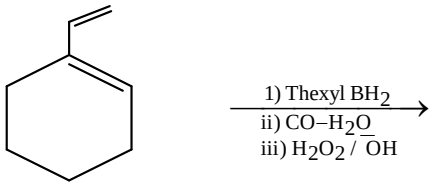
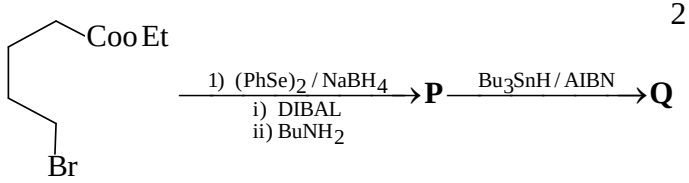
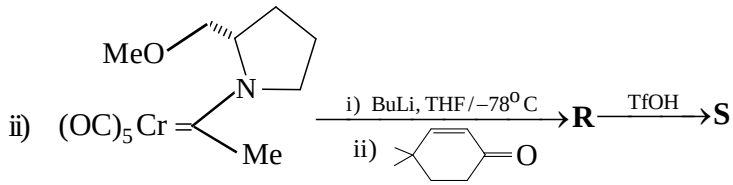
ii) 

iii) 

iv) 

b) Identify the products in following scheme ***(answr any one)*** 2

i) 

ii) 

Ex/M.Sc/CH/3/U-03121/14/2018

M. Sc. Chemistry Examination, 2018

(3rd Semester)

Organic Chemistry Special

Paper - XII-O

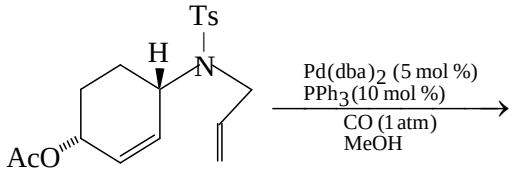
Time : Two hours Full Marks : 50

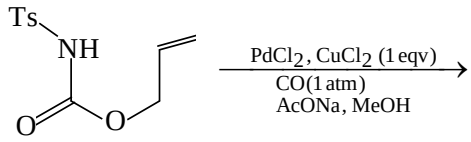
(25 marks for each unit)

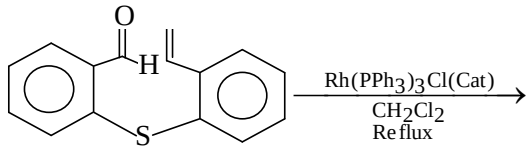
Use a separate answerscript for each unit.

UNIT - O - 3121

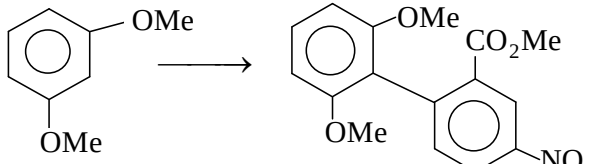
1. a) Predict the product(s) and explain with plausible mechanism : $2\frac{1}{2}+2\frac{1}{2}+2\frac{1}{2}$

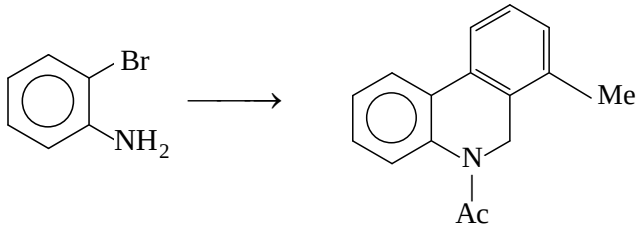
i) 

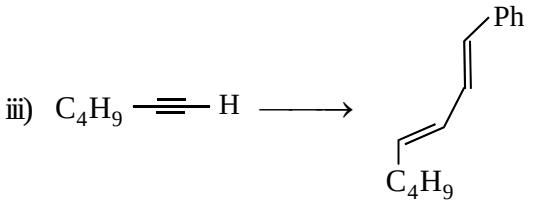
ii) 

iii) 

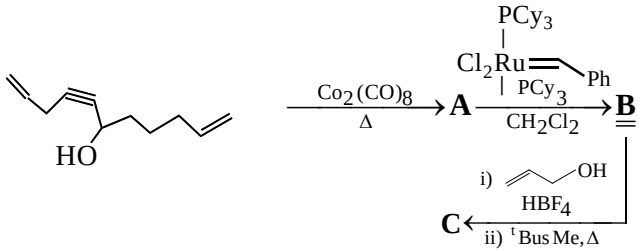
b) How can you carry out the following transformations ? (Mechanism not required) 2+2+2

i) 

ii) 

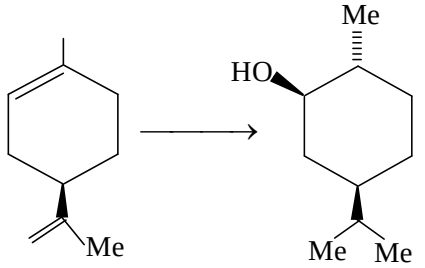
iii) 

2. a) Identify the products **A**, **B** and **C** in the following reaction sequence and explain the mechanism of their formations. 6

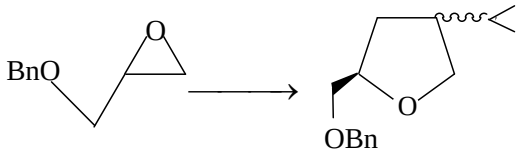


ii) Discuss the mechanistic pathway of preparation of ketones using cyanidation protocol of organoborane and also comment on the preparation of tert-alcohol using similar pathway. $1\frac{1}{2}+1\frac{1}{2}$

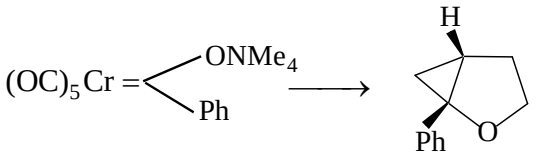
b) Carry out the following chemical trans-formation with plausible mechanism ***(answer any two)*** $1\frac{1}{2}\times2$

i) 

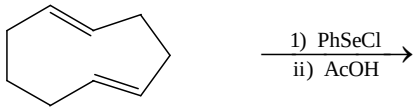
(Using Organo boron chemistry)

ii) 

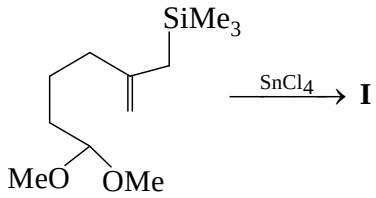
(Using Organo Selenium chemistry)

iii) 

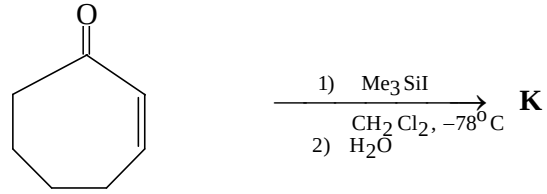
5. a) Predict the product of the following reactions and show them with plausible mechanism ***(answer any three)*** $1\frac{1}{2}\times3$

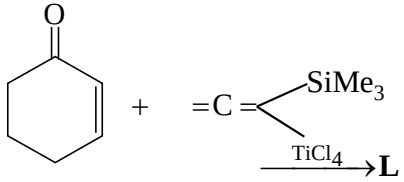
i) 

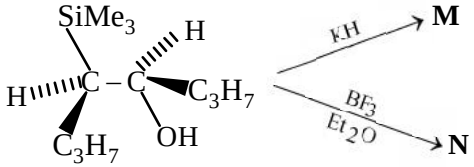
[Turn over

ii) 

iii) $Me_3SiCHN_2 \xrightarrow[2)\ Ph_2C=O/-78^oC]{1)\ Bu^nLi/-78^oC} \mathbf{J}$; 3) 25^oC

iv) 

v) 

vi) 

4. a) Answer ***any one*** of the following questions :

i) Comment on the salient features of Fischer and Schrock Carbenes and mention one method of each of their preparation. 2+1

b) Discuss the mechanism of reduction of palladium (II) salt to palladium (0) in the presence of Et_3N. $1\frac{1}{2}$

c) Suzuki-coupling of alkylborame derivatives with aryl/vinyl halide can be accomplished using $PdCl_2(dppf)$ instead of $Pd(PPh_3)_4$ as a catalyst. Explain. 2

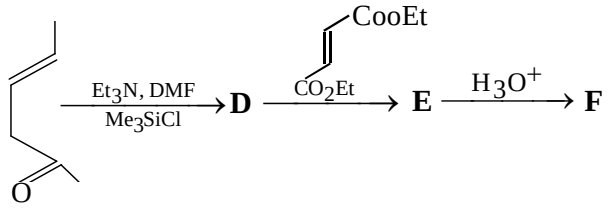
d) Palladium-catalyzed reductive elimination proceeds ..... *syn* concerted process. Explain with suitable examples. 2

UNIT - O - 3122

3. a) Write down the steps for the synthesis of a vinyl silane following Shapiro reaction. $1\frac{1}{2}$

b) How can allyl silane be prepared using the wittig reagent? $1\frac{1}{2}$

c) Complete the following reaction sequences. $1\frac{1}{2}$



d) Predict the product(s) in following reactions with plausible mechanism ***(any four)*** 2×4

i)