St. Joseph's College (Autonomous), Bengaluru – 27

End Semester Examination, April, 2018

IV Semester M.Sc. Chemistry

CHDE 0417 – Organic Synthesis

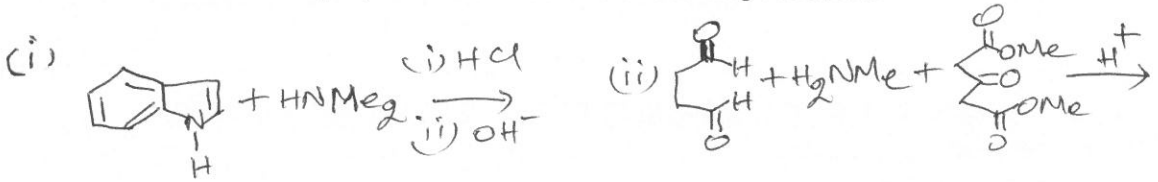
Time: 2½ hours Max. Marks:70

Note: This question paper has 3 4 pages and 3 sections

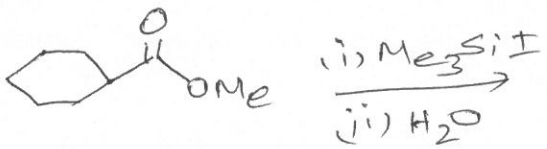
PART A

Answer any SIX of the following: **6 X 2 = 12**

1. Explain 'chemoselectivity' with an example.
2. Give any two applications of aliphatic nitro compunds in synthesis.
3. Give a reaction involving the preparation of an enamine and its application in synthesis.
4. The rates of alkylation of enolate ions are high in polar aprotic solvents. Why?
5. Write the mechanism of Prevost dihydroxylation reaction.
6. Explain Barton's reaction using a suitable example.
7. Write structure of major product formed in the following reactions:



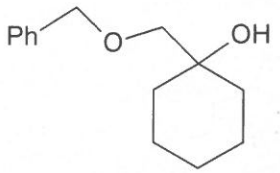
8. How will you generate TMSI in a reaction mixture? Complete the following equation.



PART B

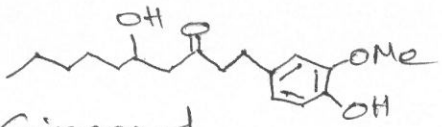
Answer any FOUR of the following: **4 X 12 = 48**

9. a) Discuss any two principles of Green chemistry with suitable illustrations.
   b) Apply disconnection approach and arrive at a plausible synthesis of the following compound: (4+8)



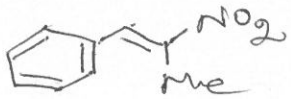
d) 

14. a) How will you synthesise the following compounds using the reactions mentioned below:

(i) 

Gingerol

Mukaiyama reaction.

(ii) 

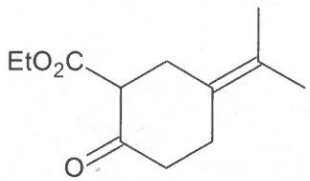
Henry reaction

b) What is Sharpless asymmetric epoxidation reaction? Give an example. Explain the role of each reagent in the reaction. (6+6)

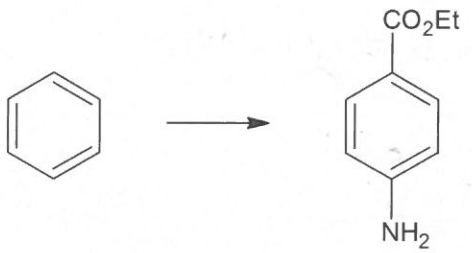
PART C

Answer any TWO of the following: **2 X 5 = 10**

15. Show the disconnections of the following compound leading to malonic ester and acetone as the starting materials:



16. a) Carry out the following conversion:



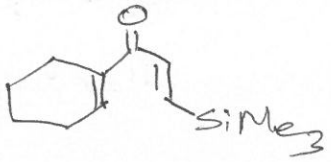
b) How will you bring about the following conversion?

(2+3)

17. Write the structure of major product formed in the following reactions:

a) 

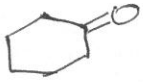
(i) NaOMe
(ii) H_2O/H^+

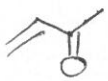
b) 

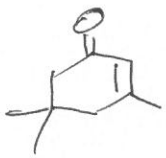
(i) $FeCl_3$, CH_2Cl_2, $-30^\circ C$
(ii) H^+

c) 

(i) H_2SO_4 ; hν
(ii) OH^-

d) 

(i) $EtO^-/EtOH$
(ii) 

e) 

(i) $C_7H_7SO_2NHNH_2$
(ii) MeLi
(iii) H^+

(1×5 = 5)

(— End of questions)