M.Sc.(Chemistry) Fourth Semester Old

MSC2432B - Organic Chemistry Paper-I Special - I

P. Pages : 2 **GUG/W/18/2453**

Time : Three Hours Max. Marks : 80

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1. a) Write the mechanism with suitable example. **8**

i) Mannich reaction.

ii) Favorski reaction.

b) Discuss the O-metalation of Arene using organolithium compounds and stereochemistry of $CH_3-Mg-Br$ addition to carbonyl compounds. **8**

OR

c) Write short notes on Benzoin condensation. **4**

d) Write short notes on Dieckmann condensation. **4**

e) Write the mechanism of following **4**

i) $Ph-\overset{O}{\overset{\|}{C}}-OH \xrightarrow[ii)\ H_2O/H^+]{i)\ CH_3Li(excess)} ?$

ii) $CH_3-\overset{O}{\overset{\|}{C}}-C_2Hs \xrightarrow[ii)\ H_2O/H^+]{i)\ CH_3-Li} ?$

f) Explain nucleophilic addition of grignard reagent to i) CO_2 ii) Isocyanates **4**

2. a) Explain **8**

i) Reformatsky reaction.

ii) Simon-smith reaction.

b) Write short notes on **8**

i) Kumada reaction.

ii) Reductive elimination of transition metal with suitable example.

OR

c) Write short notes on Wilkinson catalyst. **4**

d) Discuss Suzuki coupling reaction. **4**

e) Discuss the application of organocopper reagent in C-C bond forming reaction. **4**

f) Explain in brief Gilman's reagent. **4**

3. a) Discuss protection and deprotection of carbonyl and hydroxyl group. **8**

b) Discuss the asymmetric hydroxylation and asymmetric epoxidation with suitable example. **8**

OR

c) Discuss the conformation of monosaccharides molecule. **4**

d) Write short notes on **4**
Solid phase peptide synthesis.

e) Explain Cram's rule with suitable example. **4**

f) Write short notes on protection of carboxylic acid group. **4**

4. a) Explain two group C-C disconnection in **8**
i) Diels - Alder reaction ii) Michael addition reaction.

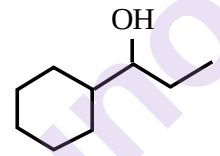
b) Explain the term with suitable example **8**
i) Chemoselectivity ii) Reversal of polarity.

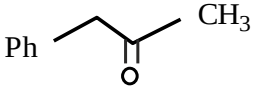
OR

c) Write one group C-C disconnection in Alcohols. **4**

d) Write short notes on amine synthesis by disconnection approach. **4**

e) Outline the retrosynthesis and design the synthesis of target molecule. **4**

i) 

ii) 

f) Write two group C-C disconnection in Robinson ring annellation. **4**

5. a) Write Aldol condensation reaction. **2**

b) Explain geometry of carbanions. **2**

c) Write short notes on organocuprate reagent. **2**

d) Define oxidative addition. **2**

e) Define Homotopic ligands. **2**

f) Define Chirality. **2**

g) Define Regioselectivity. **2**

h) Define Functional group inter-conversion. **2**

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