SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
M.Sc.(Chemistry) - END SEMESTER EXAMINATIONS APRIL - 2023
SEMESTER - II
22PCHCT2004 - Organic Reaction Intermediates and its Mechanism

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Discuss the insertion reactions involving triplet nitrene.
2. Explain the following reaction with mechanism:
   (a) Diazonium coupling
   (b) Gattermann- Koch reaction
3. How you relate stereochemistry to nucleophilic addition reaction of carbonyl compounds?
4. Describe the synthetic importance of Clemensen and wolf-Kishner reductions.
5. Define following terms with example:
   (a) Ambident nucleophiles
   (b) Anchimeric assistance
6. Discuss the effect of substrate structure and solvent polarity in aliphatic electrophilic substitution reactions.
7. How can you distinguish between E1 and E1cB reactions by labeling experiments?
8. Explain regioselective and chemoselective synthesis with suitable example?

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. (a) Explain the carbene insertion reaction and carbene addition reactions with plausible mechamism.
   (b) What are stabilized and unstabilied ylides? Explain Why stabilized ylides leads to (E)-alkene in the Wittig reaction, in contrast to unstabilized ylides leads to (Z)-alkene?
10. Describe $SN1$, $SN2$and SNi mechanism with stereochemistry.

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11. i) Explain why compared to aniline ($C_6\ H_5\ NH_2$), acetanilide (C_6H_5NHCOCH$_3$) is somewhat deactivated towards electrophilic aromatic substitution.
    ii) From the following set, select the most reactive and least reactive substrate towards ring nitration:
        Benzene, toluene, Nitrobenzene and bromobenzene.
12. Distinguish between Julia and Peterson olifination reactions with mechanism.

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. Predict the Products A, B, C, D, F with possible Mecahanism

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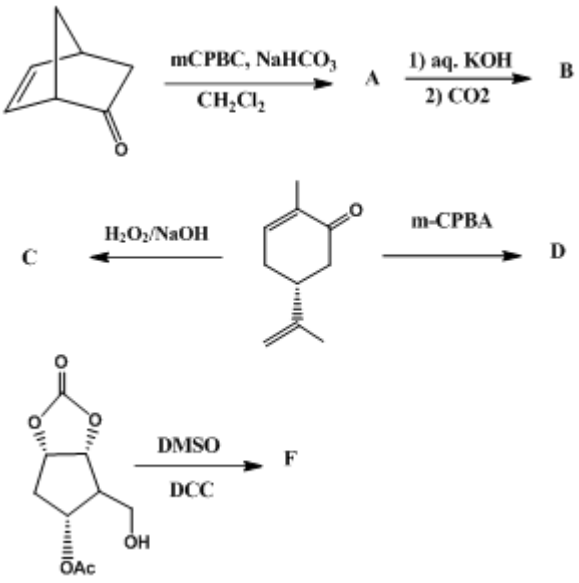

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