

2022
M.Sc.
Second Semester
 CORE – 06
CHEMISTRY
Course Code: MCHC 2.21
 (Organic Chemistry – II)

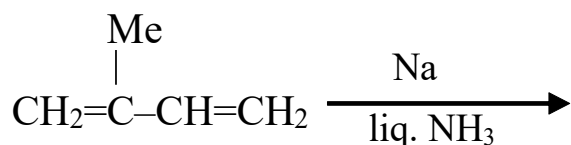
Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. (a) Explain homogeneous catalytic hydrogenation with Wilkinson's catalyst. 4
- (b) Write the reduction mechanism of alkyne with sodium metal and liquid ammonia. 4
- (c) Explain Birch reduction with mechanism. 4
- (d) Complete the following reaction 2



2. (a) Explain heterogeneous catalytic hydrogenation of alkene. 4
- (b) Explain the reduction of benzophenone in presence and absence of proton donor. 4
- (c) Write the function of catalyst. 4
- (d) Explain the term promoters and poisons. 2

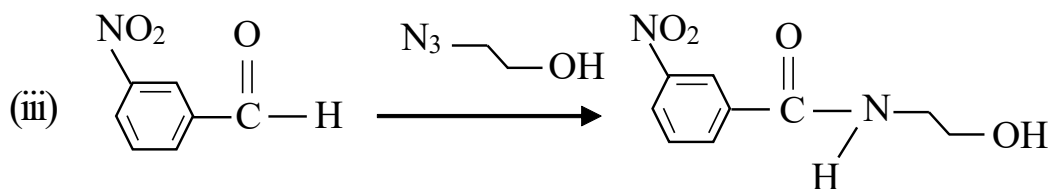
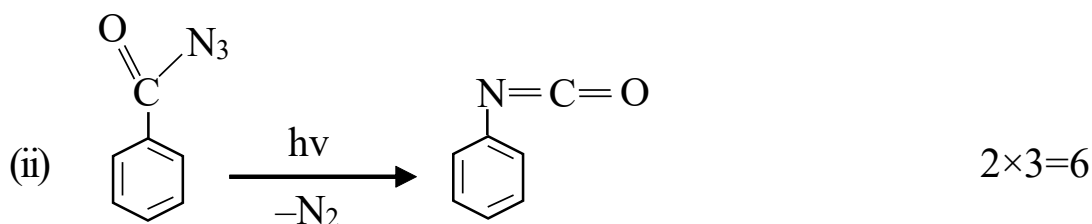
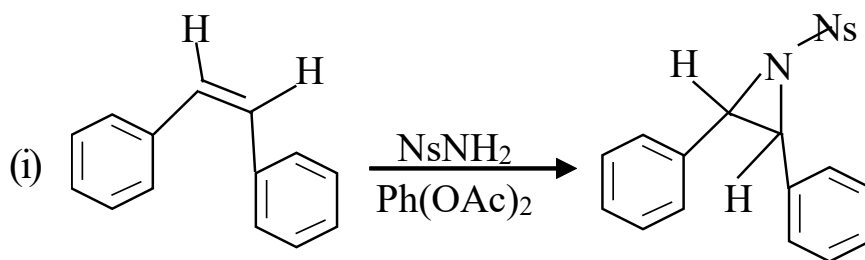
UNIT-II

3. (a) Write concrete mechanism for hydroboration of alkene. 4
- (b) Explain regioselectivity and stereochemistry for hydroboration of alkene. 4
- (c) Write the conversion of boranes to 2° alcohols, 3° alcohols and ketone. 6

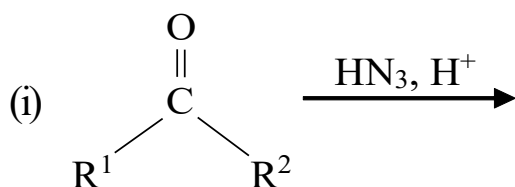
4. (a) Write the mechanism of oxidation of 2° alcohol to ketone by H_2CrO_4 4
 (b) Explain Prevost and Woodward hydroxylation of alkenes. 6
 (c) Write oxidative cleavage of C–C bond by lead tetra-acetate. 4

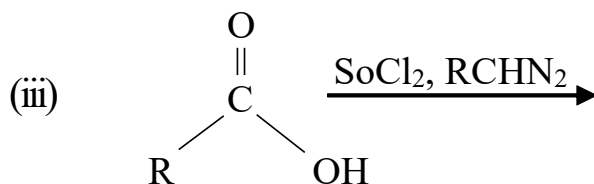
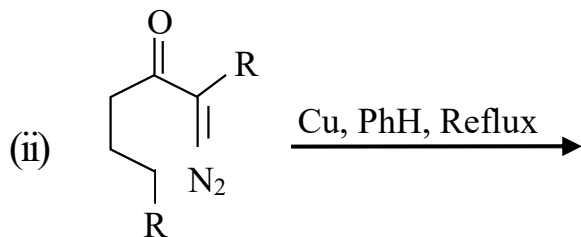
UNIT-III

5. (a) What are carbenes? Give its structure. Write the carbene cyclopropanation reaction. 4
 (b) State and explain Wolff rearrangement reaction and its reaction mechanism. 4
 (c) Bring out the following transformation involving nitrene intermediate.



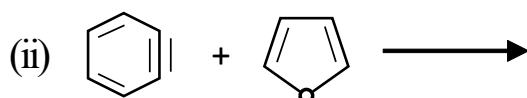
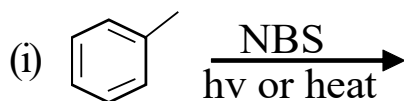
6. (a) State and explain Curtius rearrangement reaction. 5
 (b) Give the possible product of the following reactions and its mechanism. $3 \times 3 = 9$



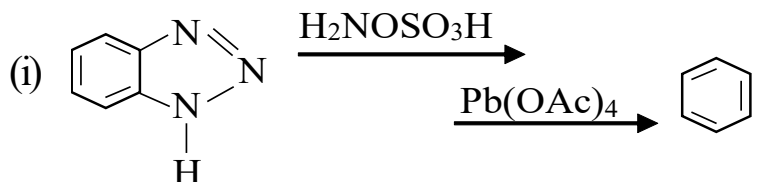


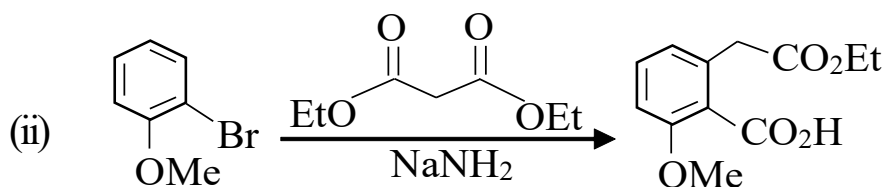
UNIT-IV

7. (a) What are free radicals? Discuss the radical cyclization of 5-hexenyl radicals. 5
 (b) Write the product of the following reactions. 2×2=4



- (c) Benzynes possess electrophilic character and undergoes reaction with nucleophile. Justify. 3
 (d) What is NBS? Give one application of NBS. 2
8. (a) Discuss the nucleophilic addition to arynes. 3
 (b) What are arynes? Give two methods to generate arynes? 3
 (c) Give the reaction mechanism of the following reaction. 4×2=8





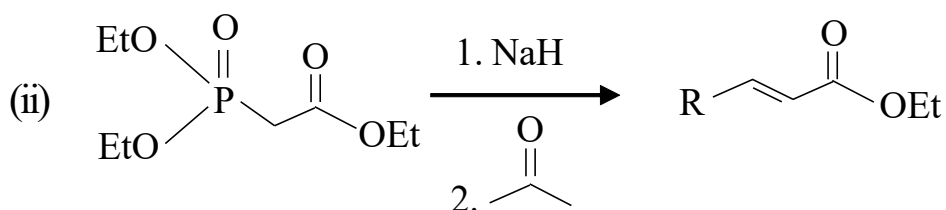
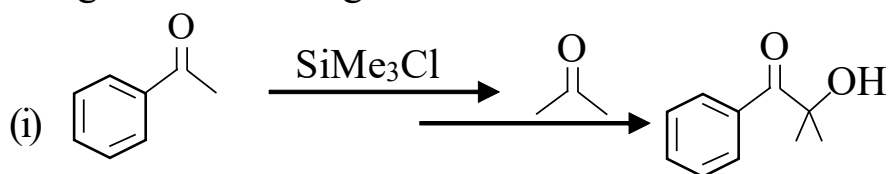
UNIT-V

9. (a) State and explain the following name reactions. 4×2=8

(i) Henry reaction

(ii) Zimmerman-Traxler model

(b) Bring out the following transformation 3×2=6



10. (a) State and explain with mechanism the following reactions. 4×2=8

(i) Prins reaction

(ii) Pictet-Sprengler reaction

(b) How will you bring about the following transformation? 3×2=6

