

**SECOND SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2019**

(CUCSS)

Chemistry

CH 2C 07—REACTION MECHANISM IN ORGANIC CHEMISTRY

(2015 Admissions)

Time : Three Hours

Maximum : 36 Weightage

**Section A***Answer all questions.**Each question carries a weightage of 1.*

1. Discuss the effect of solvents in unimolecular nucleophilic substitution reactions.
2. What are the factors that affect the 'ortho/para' ratio of a ring substitution ?
3. How can you distinguish between singlet and triplet carbenes ?
4. What is Hoffmann elimination ? Give an example.
5. Why "CN" is considered as the best catalyst for benzoin condensation ?
6. What are the catalysts used for the Wittig reaction ? What is the product ?
7. Distinguish between sigmatropic and chelotropic reactions.
8. Discuss the mechanism of Cope elimination reaction.
9. What is meant by quenching ?
10. What are the products obtained in the photoisomerization of benzene ?
11. What are the various types of steroid classification ?
12. Discuss the structure of cholesterol.

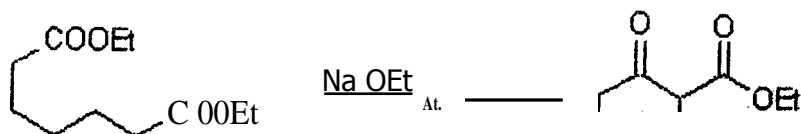
(12x1=12wei

**Section B***Answer any **eight** questions.**Each question carries a weightage of 2.*

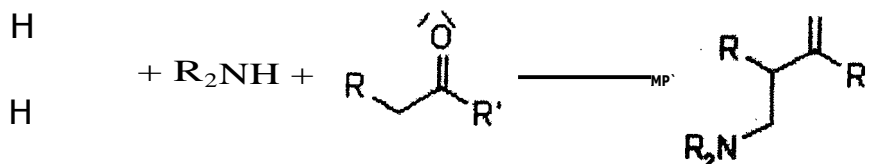
13. What are SET reactions ? Discuss its mechanism.
14. Briefly explain S<sub>N</sub>Ar mechanism.
15. Discuss the orientation of addition to a cyclopropane ring.
16. What are the methods used to distinguish between classical and non-classical carbocations

Turn over

17. Discuss the mechanism of the following reaction :



18. Briefly explain the mechanism of :



19. What is Oppenauer oxidation ? What are its importances ?
20. Discuss the FMOs of 1, 3-butadiene.
21. Discuss the mechanism of photoaddition of ketone with an unsaturated LAY:pond.
22. Discuss the mechanism of di-<sup>7</sup>E methane rearrangement.
23. Discuss the chemical classifications of natural products.
24. Discuss the general methods of isolation of steroids.

(8 x 2 = 16 weightage)

### Section C

*Answer any two questions. Each question carries a weightage of 4.*

25. (i) Briefly discuss the arenium ion mechanism.  
(ii) Explain the generation, stability and reactivity of free radicals.
26. With suitable examples, explain the stereochemistry and regioselectivity of Diels-Alder reaction
27. Explain the photochemistry of carbonyl compounds.
28. Explain the biosynthesis of Longifolene.

(2 x 4 = 8 weightage)