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C 82841

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Name.....

Reg. No.....

SECOND SEMESTER M.A./M.Sc./M.Com. DEGREE EXAMINATION, JUNE 2020

(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 stereochemical aspects of nucleophilic substitution at sp^2 carbon atom.
2. Discuss the effects of substrates in determining the rates of S_N2 reactions.
3. Name two reactions where CO is extruded.
4. What are the factors that affect the stability of a carbocation ?
5. What are Grignard reagents ? How are they prepared ?
6. What is MPV reduction ?
7. Distinguish between electrocyclic and cycloaddition reactions.
8. What is meant by valance tautomerism ?
9. Discuss the mechanism of photo-enolization.
10. Discuss the photodimerization of an alkene.
11. Discuss the structure of atropine.
12. What is the structure of anthocyanins ?

(12 × 1 = 12 weightage)

Section B

Answer **all** *questions.*

Each question carries a weightage of 2.

13. Discuss the stereochemical aspects of nucleophilic substitution at sp^2 carbon atom.
14. With suitable examples, discuss the neighbouring group participation in organic reactions.

Turn over

15. What are the factors that determine the ratio of a substitution to elimination reaction ?

16. Discuss the mechanism of pyrolytic syn. elimination reaction.

17. Explain the Wittig reaction. Discuss the mechanism. What are its scope and limitations ?

18. Compare the reactivates of organo-zinc and organo-magnesium compounds.

19. Discuss the FMOs of 1, 3, 5-hexatriene.

20. What is the mechanism of ene reaction ?

21. Discuss the mechanism of Paterno-Buchi reaction.

22. What is Barton reaction ? What is its mechanism ?

23. Explain the general method of structural elucidation of alkaloids based on degradative structure

24. Discuss the Woodward synthesis of cholesterol.

(8 × 2 = 16 weightage

Section C

Answer **all** *questions.*

Each question carries a weightage of 4.

25. (i) Explain the benzyne mechanism.

    (ii) Explain the mechanism of Michael reaction. What are its synthetic applications ?

26. (i) Explain the mechanism of ester hydrolysis.

    (ii) Briefly discuss the stereochemistry of Cope rearrangement.

27. (i) Explain the mechanism of a cyclic carbonyl compound.

    (ii) Discuss the mechanism of Hoffmann-Loeffler -Freying reaction.

28. Explain the biosynthesis of Cephalosporin.

(4 × 2 = 8 weightage