D 70919 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR) EXAMINATION NOVEMBER 2019

Chemistry

CH 3C 11—REAGENTS AND TRANSFORMATIONS IN ORGANIC CHEMISTRY

Time : Three Hours Maximum : 36 Weightage

Section A

Answer all **twelve** *questions.*
Each question carries 1 *weightage.*

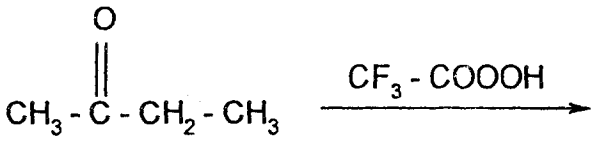
1. Give the product of the following reaction - RCH_2OH when treated with oxalyl chloride $(COCl)_2$ / DMSO ; Et_3N ; CH_2Cl_2.
2. Explain Swem Oxidation with mechanism.
3. Give any two applications of Wilkinson's catalyst.
4. What happens when cyclohexene is treated with diimide ? Give reaction.
5. What is the application of LDA ?
6. Explain reduction of multiple bond in presence of Lindlar's catalyst.
7. What are nitrenes ? Outline any two methods for their formation.
8. What are the reagents available for N- Terminal Analysis of peptides ?
9. Explain anionic polymerisation with example.
10. Explain electrophilic substitution in furan.
11. How is indole synthesised ?
12. What are carbanions ? Discuss their formation, structure and stability.

(12 × 1 = 12 weightage)

Section B

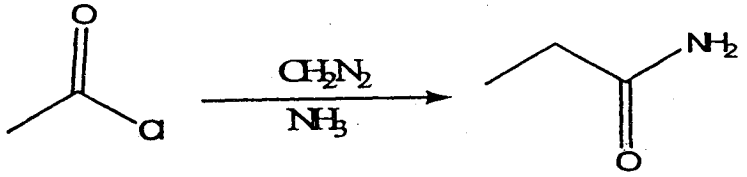
Answer any **eight** *questions.*
Each question carries 2 *weightage.*

13. What happens when cis 1,2 - cyclohexandiol is treated with periodic acid.
14. Complete the reaction with reasons –



Turn over

15. Give an account of dissolving metal reduction.
16. Explain with mechanism : (a) Wolff - Kishner reduction ; (b) Hydroboration.
17. Explain the synthetic utility of Gilman's reagent in organic synthesis.
18. Explain the role of trimethylsilyl group in organic synthesis.
19. How is cellulose converted to rayon ?
20. What are block and graft copolymers ?
21. Give one method for the synthesis of : (a) Quinoline ; (b) Thiazole.
22. How is caffeine synthesised ?
23. Explain the mechanism of the following reaction.



24. Discuss the contraction and expansion of ring systems in organic synthesis.

(8 × 2 = 16 weightage)

Section C

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

25. (a) Explain mechanism of Ozonolysis.
    (b) How can it be used to find position of double bond in an alkene ? Give an example.
    (c) Work up the ozonide of 1 - methylcyclohexene under oxidative conditions.
26. Explain mechanism of : (a) cationic polymerisation ; (b) anionic polymerisation ; (c) free radical polymerisation.
27. Explain the synthesis of : (a) uracil ; (b) cytosine ; (c) adenine.
28. Explain the mechanism of : (a) Heck ; (b) Stille ; and (c) Suzuki cross coupling.

(2 × 4 = 8 weightage)