D 6815 (Pages : 3) Name

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2016

(CUCSS)

Chemistry

CH 3E 01—SYNTHETIC ORGANIC CHEMISTRY

(2010 Admissions)

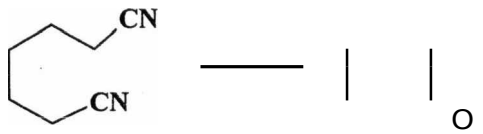
Time : Three Hours Maximum : 36 Weightage

Section A

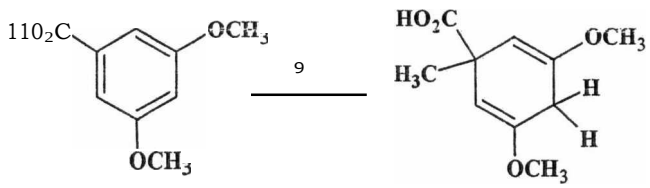
Answer **all** *the questions.*

1. Predict the product with suitable mechanism for the following reaction.

2. Explain the following reaction with suitable reagents/reaction conditions and mechanism.

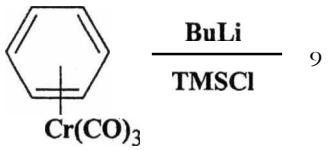


3. What are the catalysts used in Skraup reaction ? What is the role of glycerol ?
4. Give the mechanism of allylic halogenation using NCS.
5. Explain ozonolysis with suitable examples.
6. How the following transformation is achieved ?



Turn over

7. Suggest the product and propose the mechanism in the following reaction :—

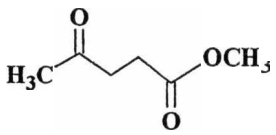


9

8. Give the evidence to prove that carboxylic and hydroxyl groups are meta to each other in reserpic acid.

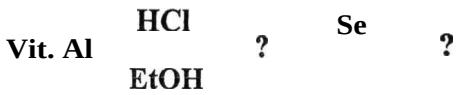
9. What are synthons and synthetic equivalents ?

10. Draw a retrosynthetic strategy for the compound given below :



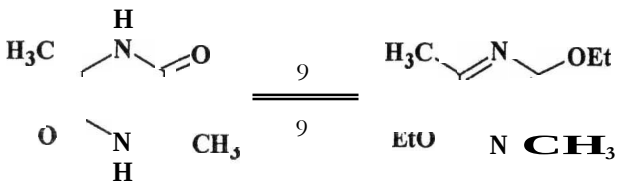
11. Explain the classification of prostaglandins.

12. Draw the structure of the products in the following reaction.



13. Illustrate the synthesis of pyrazole derivative via 1, 3-dipolar addition reaction.

14. Mention the reagents/conditions in the following reaction and propose mechanism.

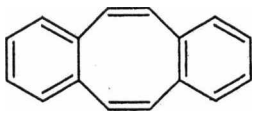


(14 x 1 = 14 weightage)

Section B

Answer any **seven** *questions.*

15. What is Wittig reaction ? How the following compound can be synthesized using Wittig reaction, propose the mechanism.



16. Outline the synthesis of isoquinoline by Bichler-Napieralski method.
17. What is homogeneous catalytic hydrogenation ? Explain taking suitable examples.
18. Illustrate with suitable examples the synthetic applications of lead tetra acetate.
19. Explain with suitable examples the importance of organozinc reagents in organic synthesis.
20. Write a note on elements of a synthesis.
21. With suitable example explain umpolung reaction and its use while planning a synthesis.
22. Outline the synthesis of vitamin A_1.
23. Explain the mechanism of Stille carbonylative cross coupling reaction.
24. How the presence of three N-CH_3 and two oxo groups are established in Caffeine ?

(7 x 2 = 14 weightage)

Section C

Answer any **two** *questions.*

25. Substantiate with suitable examples the use of sodium borohydride in organic synthesis.
26. Elucidate the structure of reserpic acid.
27. What is Gilman's reagent ? Discuss the synthesis and reactions of it.
28. Discuss the synthesis and reactions of imidazole.

(2 x 4 = 8 weightage)