

M. Sc. DEGREE EXAMINATION, APRIL 2023
BRANCH IV- CHEMISTRY
FOURTH SEMESTER

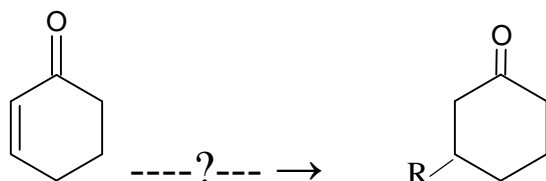
COURSE : CORE
PAPER : SYNTHETIC ORGANIC CHEMISTRY AND NATURAL PRODUCTS
TIME : 3 HOURS
MAX. MARKS: 100

SECTION – A

Answer all the questions. (20 x 1= 20)

I Choose the correct answer:

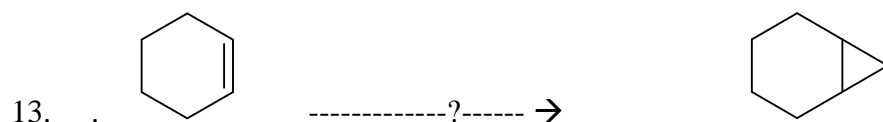
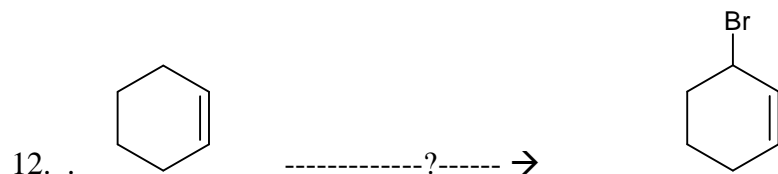
- Umpolung means -----
(a) Reversal of polarity (b) Retention of polarity
(c) Retention of chirality (d) Inversion of chirality
- Amino functional group can be protected by using ----- reagent.
(a) Acid chloride (b) Chromyl chloride (c) Alkyl chloride (d) Hydro chloride.
- 1,2 Diol can be prepared by using ----- reagent.
(a) CrO_3 (b) OsO_4 (c) DCC (d) NBS
- Reagent is used for the synthesis of amide from R-COOH and RNH_2
(a) CrO_3 (b) OsO_4 (c) DCC (d) NBS
- The reagent required for the following conversion is _____



- (a) R_2CuLi (b) RMgCl (c) RCl (d) RBr
- Which of the following is macro cyclic compound?
(a) Crown ethers (b) Diethyl ether (c) Ethyl methyl ether (d) Methyl phenyl ether
 - Which of the following contain isoprene unit?
(a) Cholesterol (b) Zingiberine (c) Papaverine (d) Reserpine
 - Phenanthrene nucleus moiety present in -----
(a) Steroids (b) Alkaloids (c) Terphenoids (d) Carotenoids
 - Which of the following is a heterocyclic compound?
(a) Sydnone (b) Succinimide (c) Sucrose (d) Salicylic acid
 - Which of the following is an example for natural pigments?
(a) Acetylene (b) Bullvalene (c) Apigenin (d) Prostaglandin

II Fill in the blanks:

Predict the reagent for the following reaction



14. One mole of cholesterol react with ----- number of mole of acetic anhydride.

15.

**III Match the following:**

- | | |
|------------------------------|--|
| 16. Die's-Alder | - Base used in organic reaction |
| 17. Lead tetraacetate | - Indole ring |
| 18. Lithium diisopropylamide | - Two group C-C disconnection approach |
| 19. Reserpine | - Flavonol |
| 20. Quercetin | - Oxidation reaction |

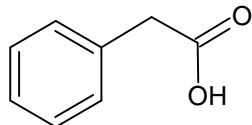
SECTION – B

ANSWER ANY FIVE QUESTIONS:

(5x8=40)

21. Define Synthone and Synthetic equivalent.

Predict the Synthone and Synthetic equivalent for the synthesis of Phenyl acetic acid.

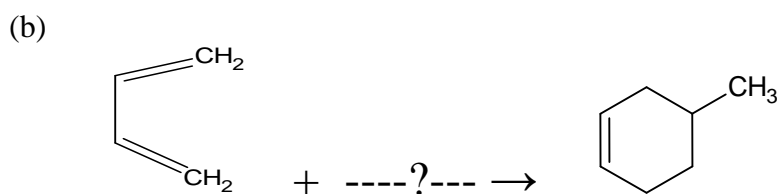
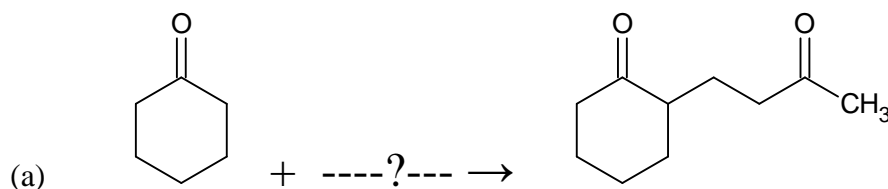


22. Write an application for the following reagent in organic synthesis.

(i) N-Bromosuccinimide

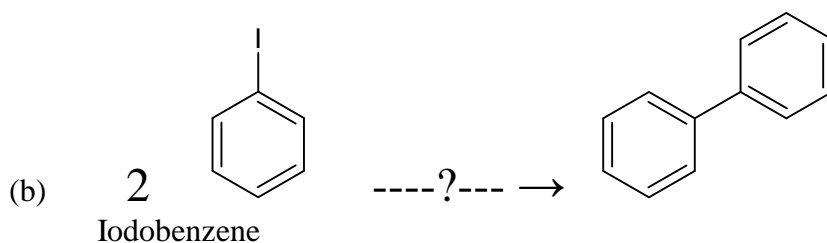
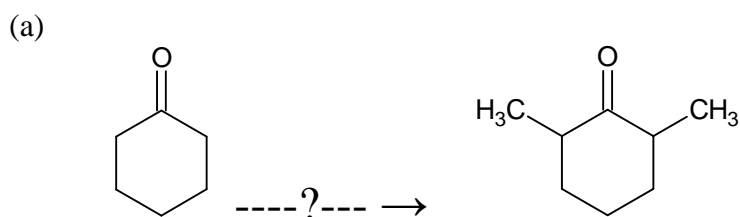
(ii) Dicyclohexylcarbodiimide

23. Predict the reactant and reagent for the following conversion. Write the mechanism involved.



24. Write a note on chemistry and structure of Crown Ether complexes.

25. How will you carryout the following conversion? Write the mechanism involved.

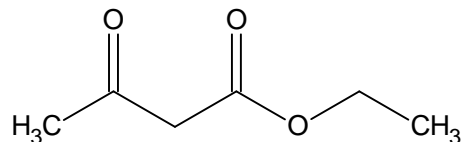


26. How the position of two angular methyl group in cholesterol is determined? Explain.
27. Write about the structural elucidation and application of UV-Visible spectroscopy in structural characteristic determination of Flavonoids.

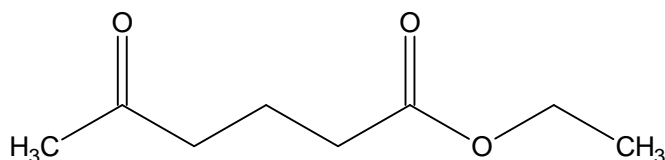
ANSWER ANY TWO QUESTIONS:**(2x20=40)**

28. (a) Write a note on disconnection approach and how will you synthesise the following compounds? (5+5)

(i)

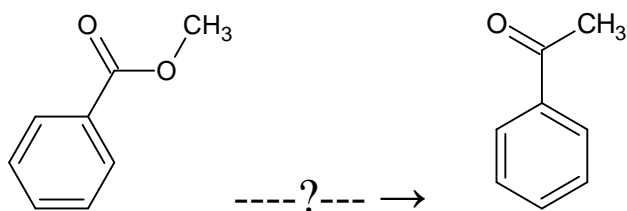


(ii)

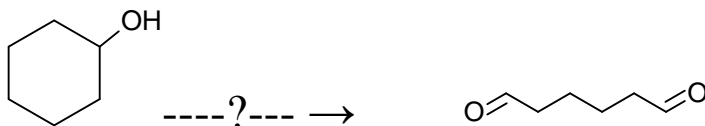


- (b) With help of functional group interconversion, How will you carry out the following conversion? (5+5)

(i)



(ii)



29. (a) Write about a methods of extraction of Alkaloids. (5)
 (b) Elucidate the structure of Reserpine. (15)
30. (a) Write a general method to synthesis the following heterocyclic compounds, Imidazole, Oxazole, and Thiazole. (15)
 (b) Write a note on the structure of natural pigments viz Anthocyanins. (5)

