

(7 pages)

Reg. No. :

Code No. : 5422

Sub. Code : ZCHM 41

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023

Fourth Semester

Chemistry-Core

SYNTHETIC STRATEGIES IN ORGANIC
CHEMISTRY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

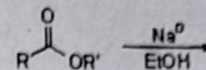
Answer ALL questions.

Choose the correct answer :

1. _____ reaction is the conversion of nitro compounds into carbonyl compounds.

(a) Stevens (b) Nef
(c) Ugi (d) Tischenko

2. The product in the following reaction is



- (a) RCOOH (b) RCHO
(c) RCOR' (d) RCH₂OH
3. Phthalimido group is used as blocking group for
- (a) aldehyde (b) ketone
(c) amine (d) ester
4. The compound from which cis-jasmone is synthesized is
- (a) acetonyl acetone
(b) methyl acetoacetate
(c) diethyl malonate
(d) acetone
5. DDQ converts tetralin into _____
- (a) naphthalene (b) acenaphthene
(c) benzene (d) cyclohexene



6. Reduction of iso-quinoline with Lithium tetraethyl borohydride gives _____

- (a) piperidine
- (b) tetrahydro isoquinoline
- (c) octahydro isoquinoline
- (d) quinoline

7. Coprostanone gives _____ on CrO_3 oxidation

- (a) 5- α -cholic acid
- (b) 5- β -cholic acid
- (c) Nor-5- β -cholic acid
- (d) Bisnor-5- β -cholic acid

8. Cholesteryl acetate on oxidation with CrO_3 gives

- (a) acetone and cholic acid
- (b) coprostanone acetate
- (c) isohexylmethyl ketone
- (d) cholestanone

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9. Camphor on treatment with ZnCl_2 gives _____

- (a) cumene
- (b) toluene
- (c) xylene
- (d) p-cymene

10. Chemical name of vitamin B1 is

- (a) Thiamin
- (b) riboflavin
- (c) cyanocobalamin
- (d) pyridoxine

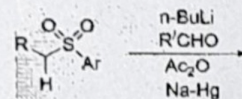
PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Compare the mechanisms of Shapiro reaction and Bamford-Stevens reactions.

Or

(b) Name the reaction, give the product and mechanism for following reaction.



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[P.T.O.]



12. (a) (i) Explain chemoselectivity with example.
(ii) What is FGI?

Or

- (b) Describe how Robinson annulation reaction is useful in synthesis of α , β -unsaturated carbonyl compounds.

13. (a) Write a short note on Suzuki coupling.

Or

- (b) With examples explain the reduction by superhydrides.

14. (a) How is cholesterol converted to
(i) androsterone and (ii) progesterone?

Or

- (b) Write a short note on Bile Acids.

15. (a) Outline the synthesis of camphoric acid.

Or

- (b) Give the synthesis of ω -Santonin.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) How is Wittig reagent generated? What are its applications?

Or

- (b) Discuss the mechanism and applications of Peterson olefination.

17. (a) Carry out the retrosynthesis of 2,4-dimethoxy-2-hydroxy pentanoic acid.

Or

- (b) Discuss the disconnections in 1,3- and 1,5- difunctionalized compounds. Give one method for synthesis of these compounds.

18. (a) Discuss the applications of (i) 9-BBN
(ii) allyl stannane

Or

- (b) Give the applications of DMSO.

19. (a) Discuss the structure of Diels Hydrocarbon.

Or

- (b) How is the constitution and position of side chain established in cholesterol?

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20. (a) Outline the synthesis of α -pinene.

Or

(b) Discuss the structure elucidation of Vitamin A.

