

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2008-09)

SUBJECT CODE: CH/MC/OC64

B.Sc. DEGREE EXAMINATION, APRIL 2011
BRANCH IV - CHEMISTRY
SIXTH SEMESTER

Reg. No

COURSE : MAJOR – CORE
PAPER : ORGANIC CHEMISTRY - III
TIME : 30 MINUTES

MAX. MARKS : 30

SECTION – A

TO BE ANSWERED ON THE QUESTION PAPER ITSELF.
ANSWER ALL THE QUESTIONS.

(30x1=30)

I Choose the correct answer.

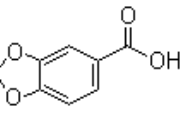
- Vit A is
(a) synthetic vitamin (b) terpenoid (c) semisynthetic vitamin (d) none of these
- o-Hydroxy benzoic acid is obtainable by
(a) Kolbes' synthesis (b) by a rearrangement process
(c) Reimer-Tiemann reaction (d) both b & c
- Identify the correct order of acidity-
(a) m-Chlorophenol p- Chlorophenol p-Nitrophenol o-Chlorophenol
(b) o-Chlorophenol p-Nitrophenol p- Chlorophenol m-Chlorophenol
(c) m-Chlorophenol p- Chlorophenol o-Chlorophenol m-Chlorophenol
(d) p-Nitrophenol o-Chlorophenol m-Chlorophenol p- Chlorophenol
- The isomeric mixture of oximes can be identified by
(a) Benzidine rearrangement (b) Beckmann rearrangement
(c) alkaline catalysed rearrangement (d) Can never be differentiated
- Action of nitrous acid on glycine gives
(a) a lactone (b) alanine (c) lactic acid (d) acetic acid
- Blancs' rule is useful to know
(a) the composition of carboxylic acids
(b) to identify the distance between the carboxylic groups of dicarboxylic acids
(c) to predict the acidic strength of an acid
(d) both a & b.

II Identify the following statements as true or false.

- Glycine after its reaction with formaldehyde can be estimated by titrating against an alkali.
- The reaction that converts benzamide into aniline is Hofmann methylation reaction.
- Addition of carbene across an olefin will yield a substituted cyclopropane.
- α - pinene is a diterpene.
- A γ - chloroacid on reaction with alkali produces lactone.
- Formation of nicotinic acid from nicotine suggests the presence of piperidine ring in nicotine.

III Fill in the blanks suitably.

13. A natural product which on thermal decomposition producing isoprene as one of the products is called as-----.

14.  aq HCl/ heat A + B

15. Nerol $\xrightarrow{\text{dil H}_2\text{SO}_4/\Delta}$?

16. $\text{CH}_3 - \text{CHBr}$ can be converted into styrene by the action of -----

17. Two molecules glycine + Cu^{+2} ? identify the product.

18. Rosenmund reaction produces-----.

IV Match the followings.

- | | |
|--|-------------------------------------|
| 19. a) Chemical name of vit C | g) optically inactive |
| 20. b) phenolic esters in the presence of aluminium chloride | h) bio-transformation to vit A |
| 21. c) Glycine | i) undergo Schotten-Bauman reaction |
| 22. d) carotenoids | j) ascorbic acid |
| 23. e) phenols | k) Fries rearrangement |
| 24. f) α -amino acids | l) bipolar compounds |

V Answer the followings.

25. What is ninhydrin reaction?

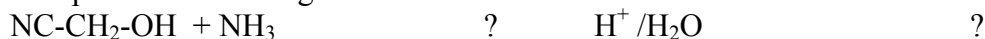
26. What is hygrinic acid? What does its formation indicate?

27. Show citral follows isoprene rule.

28. What happens when cinnamic acid reacts with bromine water?

29. Draw the structure of coniine and mark the chiral centres on it.

30. Complete the following.



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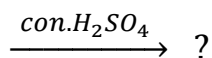
COURSE : MAJOR – CORE
PAPER : ORGANIC CHEMISTRY - III
TIME : 2½ HOURS
MAX. MARKS : 70

Section – B

Answer any five questions.

(5 x 6 = 30)

1. a) Discuss the mechanistic details of pinacol-pinacolone rearrangement.
b) Complete the reaction (4+2)

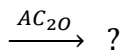


2. a) What is the action of the KOH on $\alpha \beta \gamma$ halo substituted acids?
b) What are carbenes? Give reactions of carbenes. (4+2)
3. a) How is an α, β – unsaturated acid synthesized from diethylmalonate?
b) Suggest suitable conditions to transform the following: (3+3)

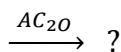
?

1-Bromo naphthalene

4. a) Discuss Streckers' synthesis of amino acids.
b) Using Blancs' rule predict the product of the following. (4+2)
(i)



(ii)



5. a) What is the product of the reaction of nitrous acid with alanine followed by heating?
b) What are zwitterions?
6. Discuss the mechanism of Hofmann's degradation of acid amide.
7. What is benzil-benzilic acid rearrangement?

Section – C**Answer any two questions.****(2 x 20 = 40)**

8. a) What is the product of the reaction of CCl_2 to trans stilbene?
b) Deduce the structure of vit C by both degradative studies and synthesis.
c) How is aldol condensation effective in C-C bond formation? (3+12+5)
9. a) Enumerate on any four synthetic applications of acetoacetic ester.
b) What is Diel's Alder reaction? Give one example.
c) How is piperine synthesized? (12+4+4)
10. a) Suggest suitable chemical synthesis for nicotine.
b) What is isoelectric point? State its significance.
c) Deduce the structure of α – pinene. (5+4+11)
11. a) Determine the structure of coniine.
b) Explain Gabriel synthesis? State its significance.
c) Write on Fries rearrangement. (10+5+5)

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