

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2015-16 & thereafter)

SUBJECT CODE: 15CH/MC/OC44

B.Sc. DEGREE EXAMINATION, APRIL 2017
BRANCH IV - CHEMISTRY
FOURTH SEMESTER

COURSE : MAJOR – CORE
PAPER : ORGANIC CHEMISTRY - II
TIME : 3 HOURS

MAX. MARKS : 100

SECTION – A

ANSWER ALL THE QUESTIONS.

(30x1=30)

I Choose the correct answer:

- Aniline condenses with benzaldehyde to form
a) Acetanilide b) Schiff's base c) Benzylamine d) Benzoquinone
- The reduction of nitrobenzene in neutral medium gives _____
a) Aniline b) Phenylhydroxylamine c) Hydrazobenzene d) Benzidine
- Which one of the following is the correct order of basic strength ?
a) $(\text{CH}_3)_2\text{NH} > (\text{CH}_3)_3\text{N} > \text{CH}_3\text{NH}_2 > \text{NH}_3$
b) $(\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2 > (\text{CH}_3)_3\text{N} > \text{NH}_3$
c) $\text{NH}_3 > (\text{CH}_3)_2\text{NH} > (\text{CH}_3)_3\text{N} > \text{CH}_3\text{NH}_2$
d) $(\text{CH}_3)_3\text{N} > (\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2 > \text{NH}_3$
- When benzene diazonium fluoroborate is heated with aqueous sodium nitrite solution in the presence of copper, the product formed is
a) Fluorobenzene b) Phenol c) Nitrobenzene d) Borobenzene
- β -Hydroxy butyric acid on heating gives _____
a) lactide b) lactic acid c) γ -lactone d) crotonic acid
- Which one of the following is the correct order of acid strength?
a) 4-Nitrophenol < 4-Chlorophenol < 4-Methoxyphenol < Phenol
b) Phenol < 4-Nitrophenol < 4-Methoxyphenol < 4-Chlorophenol
c) 4-Methoxyphenol < Phenol < 4-Nitrophenol < 4-Chlorophenol
d) 4-Methoxyphenol < phenol < 4-Chlorophenol < 4-Nitrophenol
- When sodium acetoacetic ester is treated with iodine followed by ketonic hydrolysis, the ketone obtained is
a) dimethyl ketone b) methyl ethyl ketone c) acetonyl acetone d) acetyl acetone
- In Hoffman's degradation of propanamide, the product formed is
a) ethanamine b) methanamine c) propanamine d) ethanamide

9. Which one of the following is more acidic?
 a) Acetic acid b) Trifluoroacetic acid c) Trichloroacetic acid d) Chloroacetic acid
10. Which one of the following is produced when sodium malonic ester reacts with acetyl chloride followed by hydrolysis and decarboxylation?
 a) Acetoacetic acid b) Glutaric acid c) Adipic acid d) Cinnamic acid

II Fill in the blanks:

11. When oxidised with periodic acid, ethylene glycol gives _____.
12. Hinsberg's reagent is _____.
13. Aromatic amine is identified by _____ test.
14. Aniline when heated with chloroform and alcoholic KOH gives _____.
15. α -Bromo butyric acid on treatment with aqueous KOH gives _____.
16. Ethylene glycol is used as a/an _____.
17. Cinnamic acid on treatment with soda lime gives _____.
18. _____ reagent is used as a test for unsaturation in cinnamic acid.
19. Alpha amino acids on heating gives _____.
20. Acrylic acid on reduction with sodium and ethanol gives _____.

III Match the following:

- | | | |
|---------------------|---|-----------------------|
| 21. Methyl orange | - | Vat dye |
| 22. Malachite green | - | Phthalein dye |
| 23. Fluorescein | - | Anthraquinone dye |
| 24. Alizarin | - | Triphenyl methane dye |
| 25. Indigo | - | Azo dye |

V Answer in a line or two:

26. Give the tautomer of nitroalkane.
27. What is diazotisation?
28. o-Nitrophenol is more volatile than p-nitrophenol. Why?
29. Why is phenol more acidic than alcohol?
30. What is active methylene group?

Section – B

Answer any five questions.

(5 x 6 = 30)

31. Explain the classification of dyes based on application.
32. Explain Kolbe's reaction, Friedel Crafts reaction and Reimer Tieman reaction of phenol.
33. Explain the preparation of Malachite green and Phenolphthalein
34. Give one method of preparation of oxalic acid, succinic acid and adipic acid.
35. How will you effect the following transformation?
 a) Methylamine to ethylamine
 b) Ethylamine to Methylamine

36. Give one method of preparation of acetoacetic ester and diazoacetic ester.
 37. How does benzoyl chloride undergo Rosenmund reduction and Schotten- Baumann reaction?

Section – C

Answer any two questions.

(2 x 20 = 40)

38. a) Explain the separation of mixture of amines.
 b) How will you distinguish primary, secondary and tertiary amines? (10 +10)
39. a) What is transesterification reaction?
 b) Explain the Ziesel's method of estimation of groups
 c) How will you synthesis barbituric acid, phenylalanine and cinnamic acid from malonic ester. (4+4+12)
40. a) How can the following compounds be prepared from aceto acetic ester?
 (i) Crotonic acid (ii) 4- Methyl uracil
 (iii) Antipyrene (iv) Acetyl acetone (12)
- b) Give the products
 i) Benzene diazonium chloride + Phenol →
 ii) Aniline + Br₂/H₂O →
 iii) Benzene diazonium chloride + CuCN/KCN →
 iv) Benzene diazonium chloride + benzene → (8)

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