

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86**  
(For candidates admitted during the academic year 2011 – 12)

**SUBJECT CODE: 11CH/MC/OC54**

**B.Sc. DEGREE EXAMINATION, NOVEMBER 2013**  
**BRANCH IV- CHEMISTRY**  
**FIFTH SEMESTER**

REG.NO .....

**COURSE : MAJOR CORE**  
**PAPER : ORGANIC CHEMISTRY-II**  
**TIME : 30 MINUTES**

**MAX.MARKS : 30**

**SECTION – A** (30x1=30)  
**ANSWER ON THE QUESTION PAPER ITSELF.**

**Answer all the questions.**

**I Choose the correct Answer:** (10x1=10)

1. Tetracyclines are used as an
  - a) Antimalarial
  - b) Antitubercular
  - c) Antibiotic
  - d) Antileprotic
2. Penicillin has ----- thiazolidine structure
  - a)  $\beta$  – lactam
  - b)  $\alpha$ - lactam
  - c)  $\gamma$ - lactam
  - d)  $\delta$ - lactam
3. Peracid oxidation of pyridine gives
  - a) Pyridine – N- Oxide
  - b) Picolinic acid
  - c) Cinchomeric acid
  - d) None of these
4. In pyridine electrophilic substitution occurs exclusively at
  - a)  $\delta$  – position
  - b)  $\gamma$ - position
  - c)  $\beta$ - position
  - d)  $\alpha$ - position
5. IUPAC name of pyrrole is
  - a) Azine
  - b) Azolidine
  - c) Azole
  - d) Diazine

6. The decomposition of diazoketone into ketene in the presence of Ag is known as
  - a) Benzidine rearrangement
  - b) Wolff rearrangement
  - c) Claisen rearrangement
  - d) Hofmann rearrangement
7. The central metal atom in chlorophyll is
  - a) Fe
  - b) Mg
  - c) Co
  - d) K
8. Leibermann's test is a diagnostic test for
  - a) Primary amine
  - b) Secondary amine
  - c) Quaternary ammonium salt
  - d) Tertiary amine
9. Hydrazo benzene when boiled with acid gives
  - a) Benzidine
  - b) Aniline
  - c) Azobenzene
  - d) None of these
10. Which one of the following is the most acidic
  - a) 2,4-dinitro phenol
  - b) Picric acid
  - c) o-nitro phenol
  - d) p- nitro phenol

**II Fill in the blanks:****(10x1=10)**

11. Carbylamine test is answered by -----.
12. Alkyl nitrite on reduction with Sn/HCl gives-----.
13. An example for a natural dye is -----.
14. An example for a mordant dye is -----.
15. 2,3- diketo Indole is known as-----.
16. The electrophile in coupling reaction is -----.
17. The reaction of Indole with HCHO and diethyl amine to give 3-dimethylaminomethylindole is known as ----- reaction.
18. Among the five membered heterocycles ----- has the least resonance energy
19. Aryl diazonium salts ----- stable than aliphatic diazonium salts.
20. Hofmanns degradation of Benzamide is facilitated by ----- groups in the benzene ring .

**III Match the following:****(5x1=5)**

- |                     |              |
|---------------------|--------------|
| 21. Quinine         | Hypnotics    |
| 22. Sulphadiazine   | Analgesics   |
| 23. Chloramphenicol | Antimalarial |
| 24. Aspirin         | Bactericidal |
| 25. Barbiturates    | Antibiotic   |

**IV Answer in a line or two:****(5x1=5)**

26. Arrange the following amines in the increasing order of basic strength;  
Benzylamine , Aniline , Methyl amine
27. What is the basis for Mullikens test for a nitro group ?
28. Draw the structure of phenolphthalein.
29. Write the structure of the product obtained when furan reacts with maleic anhydride.
30. Predict the product formed when m-dinitrobenzene is treated with ammonium polysulphide.

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**TIME : 2½ Hours**

**MAX.MARKS : 70**

**SECTION – B**

**(5x6=30)**

**ANSWER ANY FIVE QUESTIONS**

1. What is Hinsberg's reagent ? How will you separate a mixture of primary , secondary and tertiary amines using this reagent ?
2. What is Beckmann's rearrangement ? Give its stereochemistry and mechanism.of the reaction .
3. Discuss the reduction of nitrobenzene in acidic, basic and neutral medium.
4. Give the products obtained when aniline . N-methylaniline and N.N- dimethyl aniline reacts with nitrous acid.
5. a) Explain the mode of action of sulpha drugs. [4]  
b) What is Chichibabin reaction ? Give an example. [2]
6. How will you differentiate primary , secondary and tertiary nitroalkanes.
7. Give the mechanism of the rearrangement reaction to convert  $RCONH_2$  to  $RNH_2$ .

**SECTION – C**

**(2x20=40)**

**ANSWER ANY TWO QUESTIONS**

8. a)Starting from Benzene diazonium Chloride how will you prepare  
i)Phenol , ii) benzene , iii) Fluorobenzene iv) nitrobenzene [8]  
b) What is coupling reaction ? Why coupling with phenols is carried out in weakly alkaline medium and with amines in weakly acidic medium. [8]  
c) Compare the basic character of pyridine and pyrrole. [4]

9. a) Give the Skraup's synthesis of Quinoline . What happens when Quinoline and Isoquinoline are Oxidized with alkaline  $\text{KMnO}_4$  . [8]
- b) Give the preparation of i) Indigo ii) Malachite Green iii) Methylorange. [9]
- c) Explain why pyridine undergoes nucleophilic substitution more readily than benzene. [3]
10. a) Explain the following terms with example
- i) Chromophore                      ii) Auxochrome                      iii) Chromogen
- iv) Bathochromic Shift              v) Hypsochromic shift              [10]
- b) Predict and name the product [ 5 x2 = 10]
- i. Quinoline on treatment with Sulphuric acid and Sulphur trioxide at  $100^\circ\text{C}$
- ii. Pyridine on treatment with  $\text{Br}_2$  at  $300^\circ\text{C}$
- iii. Diazomethane on treatment with ethylene.
- iv. Pyrrole on treatment with carbondioxide under pressure
- v. Furan on treatment with HCN and HCl

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