

B.Sc. DEGREE EXAMINATION, APRIL 2008  
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.

I. Choose the correct answer: (5x1=5)

- The number of isoprene units in a sesquiterpene is  
a) 2                      b) 3                      c) 4                      d) 6
- Which of the following is the example for quinoline alkaloid  
a) coniine              b) nicotine              c) quinine              d) piperine
- The antibiotic used for treating tuberculosis is  
a) penicillin          b) streptomycin          c) terramycin          d) aureomycin
- $HOCH_2CHOHCOCH_2OH$  is classified as  
a) aldohexone      b) deoxyaldotetrose      c) aldotetrose          d) ketotetrose
- The general order of migratory aptitude for the pinacol pinacolone rearrangement is  
a) p-anisyl>p-tolyl>phenyl>tertiary alkyl  
b) phenyl>p-anisyl>p-tolyl>tertiary alkyl  
c) tertiary alkyl>p-anisyl>p-tolyl>phenyl  
d) tertiary alkyl>phenyl>p-tolyl>p-anisyl

II. Fill in the blanks: (5x1=5)

- The primary structure of a nucleic acid is the \_\_\_\_\_ in the strand.
- \_\_\_\_\_ form of LSD is biologically active.
- Sulphapyridine is used for the treatment of \_\_\_\_\_.
- $\alpha$  -D-glucose has the IUPAC name \_\_\_\_\_.
- In \_\_\_\_\_ rearrangement, an amide is converted to an amine possessing one carbon atom less.

**III. State whether true or false:** **(5x1=5)**

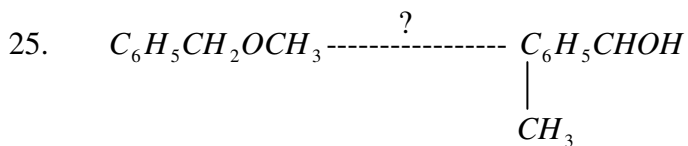
11. Vitamin A can also be called as retinal.
12. Uracil is one of the bases present in RNA.
13. The anomers of D-glucose have specific rotations of the same magnitude but of opposite sign.
14. Penicillins are dibasic acids.
15. Benzilic acid rearrangement is an anionic rearrangement.

**IV. Match the following:** **(5x1=5)**

- |              |   |  |
|--------------|---|--|
| 16. Curtius  | - | $\alpha, \beta$ – unsaturated aldehyde |
| 17. Lossen   | - | N-haloamide                            |
| 18. Hoffmann | - | isoprene                               |
| 19. Citral   | - | hydroxamic acid                        |
| 20. Terpenes | - | acyl azide                             |

**V. Give short answers:** **(5x2=10)**

21. Define nucleoside
22. Give the structure of chloromycetin.
23. How do epimers and anomers differ?
24. Will glycosides react with Fehling’s reagent? Explain.



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TIME : 2½ HOURS  
MAX. MARKS : 70

SECTION – B

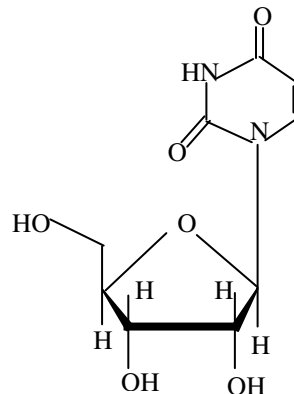
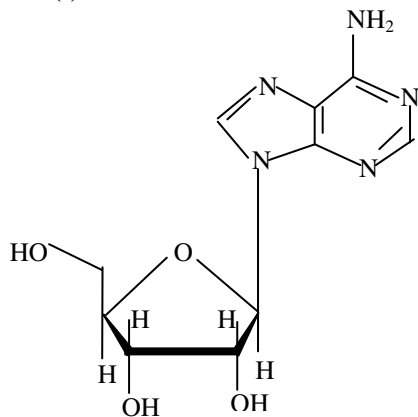
I Answer any five questions: (5x6=30)

- Describe the methods used for the detection of methoxyl groups and alkyl groups present in alkaloids.
- How is the four membered ring of  $\alpha$  pinene confirmed.
- Explain the mode of action of sulpha drugs.
- Explain Mutarotation with example.
- Give the products from the reactions of  $HIO_4$  with  
(a)  $HOCH_2(CHOH)_4CHO$  and (b)  $HOCH_2(CHOH)_3COCH_2OH$ . How can this reaction be used in a simple way to distinguish between these two isomers?
- How can an aldopentose be converted to an aldohexose?
- How will you carry out the following conversion? Give suitable mechanism.  
Propanamide  $\longrightarrow$  Ethylamine

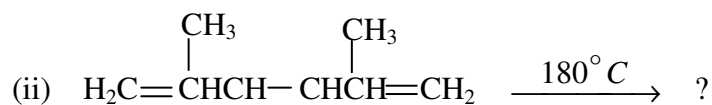
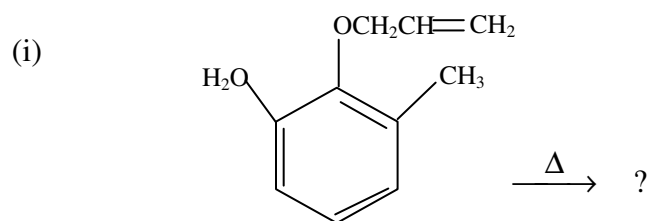
SECTION – C

II Answer any two questions: (2x20=40)

- Discuss the structure of citral. (10)
  - How will you synthesise coniine from  $\alpha$  – picoline? (5)
  - Name the following compounds. (5)  
(i) (ii)



9. a) Give the structures and modes of action of penicillin and streptomycin. (10)  
 b) What is LSD? Give its structure and uses. Discuss the effect of LSD on central nervous system. (10)
10. a) Explain why D-glucose and D-fructose form the same osazone. (5)  
 b) Elucidate the structure of vitamin C. (15)
11. a) Write notes on (i) Beckmann rearrangement  
 (ii) Benzil-benzilic acid rearrangement and  
 (iii) benzidine rearrangement. Give their mechanisms with one example. (15)  
 b) Complete the following reactions. (5)



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