

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2004-05 & thereafter)

SUBJECT CODE: CH/MC/OC64
B.Sc. DEGREE EXAMINATION, APRIL 2010
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.

1. The base adenine occurs in _____. a) DNA b) RNA c) DNA & RNA d) Protein.
2. Which of the following is a fat soluble vitamin?
a) Vitamin A b) Riboflavin c) Vitamin C d) Pyridoxine.
3. Which of these is a hypnotic?
a) metaldehyde b) acetaldehyde c) formaldehyde d) paraldehyde
4. The carbohydrate present in milk is
a) sucrose b) maltose c) lactose d) cellobiose
5. The starting compound in Lossen rearrangement is
a) azide b) amide c) hydroxamic acid d) acid
6. Benzilic acid rearrangement is catalysed by a
a) H^+ b) OH^- c) PCl_5 d) $SOCl_2$

II. Say true or false.

7. Adenosine is an example of a nucleotide
8. Vitamin E occurs in soyabean oil.
9. Streptomycin is an antibiotic.
10. Cellulose is a straight chain polysaccharide composed of D-glucose and D-fructose unit.
11. All monosaccharides are reducing sugars.
12. Cope rearrangement involves concerted mechanism.

III. Match the following.

- | | |
|------------------------|--------------|
| 13. β – Carotene | verbena |
| 14. Coniine | dextrin |
| 15. Myrcene | carrots |
| 16. Chloroquine | ylide |
| 17. Polysaccharide | hemlock |
| 18. Wittig | antimalarial |

IV. Fill in the blanks.

19. The nature of nitrogen in the alkaloid can be established by _____.
20. An example for pyridine alkaloid is _____.
21. The isoprene units are generally linked with one another through _____.
22. Drugs used to lower body temperature are called _____.
23. The pair of optical isomers which differ in the orientation of H and OH group only at C-1 are called _____.
24. The common name of 4,4' – diamino biphenyl is _____.

V. Answer in a line or two.

25. State isoprene rule.
26. Give the structure of Vitamin-A.
27. What happens when sucrose is boiled with dil.HCl?
28. Define mutarotation.
29. Why RCONHR' fails to undergo Hoffmann rearrangement. Explain.
30. Name 2 mechanisms involving electron deficient N intermediate.



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TIME : 2½ HOURS

MAX. MARKS : 70

Section – B

Answer any five questions.

(5 x 6 = 30)

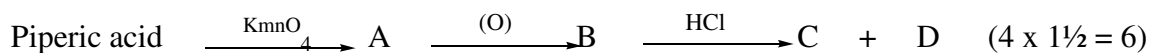
1. What are nucleosides and nucleotides? Explain the formation of a dinucleotide.
2. What are the different types of RNA found in the cells of an organism? State the functions of each type.
3. How is Glucose converted to fructose & vice versa?
4. Give the synthesis and mode of action of sulphaguanidine.
5. a) What are sedatives? Give examples. (3)
b) Why sucrose is a non-reducing sugar? Explain. (3)
6. Illustrate with an example the steps of Killiani – Fischer synthesis.
7. a) Define a carbo hydrate. (2)
b) Give the structure of
(i) epimer (ii) anomer
(iii) enantiomer (iv) diastereomer of αD glucose (4)

Section – C

Answer any two questions.

(2 x 20 = 40)

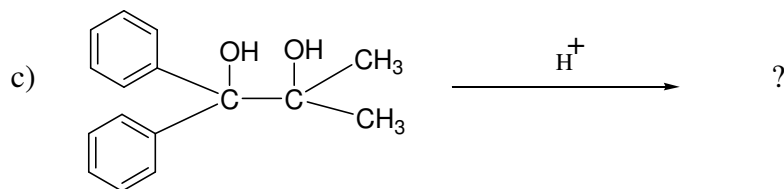
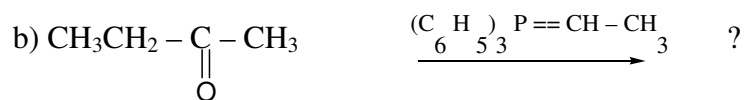
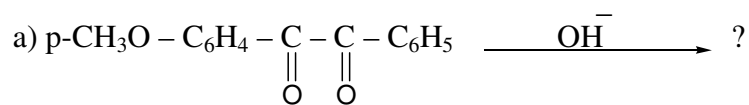
8. i) Discuss the Watson & Crick model of DNA. (6)
ii) Establish the structure of coïne. (8)
iii) Predict the products $A \rightarrow D$ in the following sequence (5)



9. i) Elucidate the structure of citral. (5)
 ii) Explain Beckman rearrangement with an example. (5)
 iii) Write short notes on (4 x 2½ = 10)
 a) analgesics b) antibiotics c) hypnotics d) antimalarials

10. i) Explain Wald's visual cycle. (5)
 ii) Why glucose and fructose give the same osazone with excess of phenyl hydrazine? Explain. (5)
 iii) Distinguish between maltose and cellobiose. (5)
 iv) Discuss Muta rotation with examples.

11. i) Predict the product and give the mechanism (5 + 5 + 5)



- ii) Discuss the ring structure of glucose. (5)

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