LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION - **CHEMISTRY**

SECONDSEMESTER – **APRIL 2013**

CH 2955- BIO-ORGANIC CHEMISTRY

Date : 04/11/2013 Dept. No. Max. : 100 Marks

Time : 9:00 – 12:00

PART-A

*Answer **ALL** questions.* (10 × 2 = 20 marks)

01. Draw the structure of D-allose and its epimer.
02. What is dextran?
03. How do A, B and Z forms of DNA differ basically.
04. Draw the H-bonding between adenine and thymine.
05. What are alkaloids? How are they isolated from natural sources?
06. Explain Zeisel's method of estimation of methoxy group.
07. What do 'nor' and 'homo' signify with the nomenclature of steroids?
08. How will you prove that cholesterol is a tetracyclic compound?
09. Give the structure of the following compounds.

    (a) Pelargonidin chloride (b) Hirsutidin Chloride
10. Write a test to identify the no.of sugar units in anthocyanins.

PART-B

*Answer any **EIGHT** questions.* (8 × 5 = 40 marks)

11. How is dextrose prepared in the laboratory?
12. Explain the following

    a) Epimerisation b) mutarotation
13. With the complete scheme, explain gluconeogenesis.
14. How is protein extracted and purified?
15. Explain the preparation of a nucleotide.
16. Name the different kinds of degradation reaction. Explain any one type with its use.
17. How terpenoids are classified based on isoprene unit? Explain.
18. How is vitamin-A synthesized?
19. Write the mechanism of an acid catalyzed molecular rearrangement of a steroid.
20. Draw the stereochemical structures of cholesterol and explain their functions.
21. Write short note on colour of anthocyanins.
22. How is flavone prepared by Robinson method?

PART-C

*Answer any **FOUR** questions.* ($4 \times 10 = 40$ marks)

23. a) How is the ring size of dextrose determined? (7)

    b) What is the biological importance of hemicellulose? (3)

24. a) Write a short note on electrophoresis. (5)

    b) Compare the structure and properties of DNA and RNA. (5)

25. Elucidate the structure of cadinene.

26. Explain the synthesis of following compounds:

    a) Cocaine b) papaverine

27. a) Predict the conformations between rings A,B and C,D in steroids. (4)

    b) Explain the synthesis and functions of oestrone. (6)

28. How would you determine the structure of the following?

    a) Cyanidin chloride b) Flavone

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