

16U611

(Pages: 2)

Name:

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2019

(Regular/Supplementary/Improvement)

(CUCBCSS - UG)

CC15U CHE6 B10 - ORGANIC CHEMISTRY III

Chemistry - Core Course

(2015 Admission onwards)

Time: Three Hours

Maximum: 80 Marks

Section A

Answer *all* questions. Each question carries 1 mark.

1. Shift of absorption maxima to longer wavelength side is called _____ shift.
2. The vibrational transition to a particular energy level on infra- red absorption is associated with change in _____ of the molecule.
3. Hopekin-Cole test used to identify the presence of _____ group in a protein.
4. A non-protein portion which obtained upon hydrolysis of conjugated protein is called _____
5. _____ is an alkaloid used in the treatment of malaria.
6. _____ is the water insoluble component of starch which consist of branched polymer of α -glucose.
7. The electrocyclic ring closure of a π system with $4n$ electrons through *dis* rotation take place under _____ condition.
8. _____ is an example for peptide hormone.
9. The deficiency of Vitamin C causes _____
10. The male sex hormones are called? _____

(10 x 1 = 10 Marks)

Section B

Answer any *ten* questions. Each question carries 2 marks.

11. How will you distinguish between primary and secondary amines using IR-spectroscopy?
12. What is chemical shift?
13. Why TMS is used as reference in NMR spectroscopy?
14. What is meant by mutarotation of glucose?
15. Define isoprene rule.
16. What are nucleotides? Illustrate with example.
17. Give the structure of vitamin A.
18. What are the main constituents and uses of sandal wood oil?
19. Discuss the chemistry of Xanthoproteic test.
20. Give the structure of cellulose.
21. Distinguish between chromophores and auxochromes.

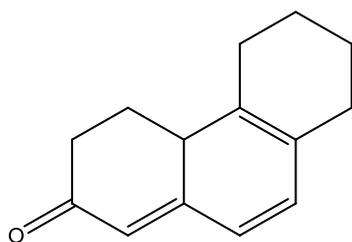
22. What are the important differences between DNA and RNA? (10 x 2 = 20 Marks)

Section C

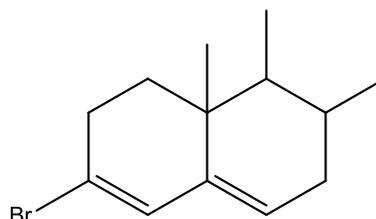
Answer any *five* questions. Each question carries 6 marks.

23. Discuss briefly on classification of lipids with examples for each.
24. Explain the Edman's method of *N*-terminal analysis.
25. How will you distinguish the functional group isomers of C_2H_6O with 1H NMR spectroscopy. Draw the spectrum in each case.
26. Comment on the reducing properties of sucrose with the help of suitable structure.
27. Calculate the λ_{max} of the following compounds.

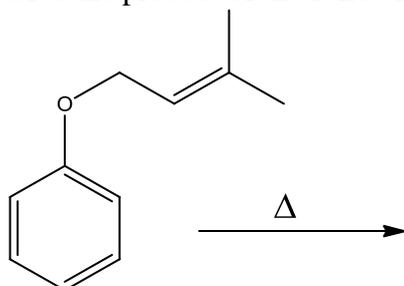
(a)



(b)



28. Give the product of the following reaction:



29. Discuss briefly on different methods used for the isolation of essential oils.
30. Write a note on steroid hormones and their biological functions.

(5 x 6 = 30 Marks)

Section D

Answer any *two* questions. Each question carries 10 marks.

31. (a) Discuss the significant steps involved in the solid phase peptide synthesis.
(b) Explain the Strecker synthesis of amino acids. (6 + 4 Marks)
32. (a) Sketch the MO diagram of 1,3,5-hexatriene and show the HOMO and LUMO in the ground state.
(b) Using the Frontier orbital diagram show the mode of cyclisation of 1, 3, 5 - hexatriene under thermal and photochemical conditions. (5 + 5 Marks)
33. Describe the various steps involved in the conversion of D-arabinose to D-Glucose and vice versa.
34. Discuss the biosynthesis of proteins in detail.

(2 x 10 = 20 Marks)
