

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2015

(CUCBCSS—UG)

Complementary Course

CHE 3C 03—ORGANIC CHEMISTRY

Time : Three Hours

Maximum : 64 Marks

Section A (One Word Answer)*Answer **all** questions.**Each question carries 1 mark.*

1. The self linking property of Carbon is known as _____
2. The type of hybridization of Carbon in methyl radical is _____
3. The optical isomers which are mirror images of each other are called _____
4. Among geometrical isomers of But-2-ene-1,4-dioic acid, the isomer having zero dipole moment is _____
5. One example for meta- orientative substituent is _____
6. The electrophile in Sulphonation reaction is _____
 . _____ is a pyrimidine base present in RNA.
8. The zwitter ion form of glycine is _____
9. Oils and Fats are _____ of higher fatty acids.
10. Give one example for an essential oil.

(10 x 1 = 10 marks)**Section B (Short Answer)***Answer any seven questions.**Each question carries 2 marks.*

11. Draw the structure of geometrical isomers of But-2-ene.
12. Discuss briefly on isomerism in disubstituted benzene compounds.
13. What is Huckel's rule ? Explain the aromaticity of Tropylium cation using it.
14. What are the products obtained when benzene is first chlorinated and then nitrated ? Justify your answer.
15. How alcohols can be prepared by using Grignard reagent ? Explain.

Turn over

16. Write briefly on Williamson's ether synthesis with one example.
17. What is meant by denaturation of protein ?
18. What is the pentose sugar present in RNA ? Draw its structure.
19. What is Iodine number of an oil ? What is its significance ?
20. What is meant by vulcanization ? Mention two advantages of vulcanized rubber.

(7 x 2 = 14 marks)

Section C (Paragraph Answer)

*Answer any **four** questions.*

Each question carries 5 marks.

21. Taking suitable examples compare the acidity of aliphatic carboxylic acids.
22. Discuss the optical isomerism in Lactic acid. What is meant by resolution ?
23. Explain the mechanism of nitration and Friedel Craft's reaction in benzene.
24. Write the mechanism of SN^- reactions of alkyl halides with one example.
25. Give any four synthetic applications of Benzene diazonium chloride.
26. Write a brief note on double helical structure of DNA.

(4 x 5 = 20 marks)

Section D (Essay)

*Answer any **two** questions.*

Each question carries 10 marks.

27. (a) What is hyper conjugation ? How it can be used to explain extra stability of 2-Butene than 1-Butene.

(b) What are Carbocations ? Discuss the relative stabilities of Carbocations.

(5 + 5 = 10 marks)

28. a What is Haloform reaction ? How will you distinguish between methanol and ethanol using iodoform test ?

(b) What is Lucas Test ? How will you distinguish primary, secondary and tertiary alcohols by Luca's Test ?

(5 + 5 = 10 marks)

29. (a) Write short notes on :

(i) Hofmann's bromamide reaction. and

(ii) Hofmann's Carbylamine reaction.

(b) Compare the basicity of ammonia, methylamine and aniline.

(5 + = 10 marks)

30. (a) How are proteins classified based on amino acid residue ?

(b) Write any two examples for Enzymes and mention any two characteristics of enzymes.

(c) Discuss primary, secondary and tertiary structure of proteins.

(3 + 2 + 5 = 10 marks)

[2 x 10 = 20 marks]