

D 92290

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Name.....

Reg. No.....

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-diol~~ acid, the isomer having zero dipole moment is _____
5. One example for meta- orientative substituent is _____
6. The electrophile in Sulphonation reaction is _____
7. _____ 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 **SN¹** 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 **Haloforn** 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 + 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]