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C 21516   (Pages : 2)   Name...................................

Reg. No...................................

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION, APRIL 2022

Chemistry

CHE 4B 04—ORGANIC CHEMISTRY—I

(2019 Admission onwards)

Time : Two Hours   Maximum : 60 Marks

Section A (Short Answers)

*Answer at least **eight** questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. Distinguish between inductive effect and mesomeric effect.

2. Write a note on carbenes.

3. Which is the most acidic among chlorobutanoic acids ? Justify.

4. Predict the product formed by the catalytic hydrogenation of propyne and reduction of propyne by Lindlar's catalyst.

5. Account for the acidity of terminal alkynes.

6. What is dipole induced dipole interactions ?

7. Explain the aromaticity in furan.

8. What is azulene ?

9. Why cyclopentadienyl anion is aromatic while the corresponding cation is not ?

10. The C - C bond length in benzene is 1. 39 Å . Explain.

11. How is benzyne intermediate formed ?

12. How will you convert benzene to chloro benzene ?

                                                    (8 × 3 = 24 marks)

Section B (Paragraph)

*Answer at least **five** questions.*
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.

13. State Markovnikov's rule. Explain its mechanism.

14. Write a note on RS system of nomenclature for acyclic optical isomers with one asymmetric carbon atom.

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15. What are meso compounds ? Explain with an example. How is it different from a racemic mixture ?

16. Discuss the stability order of 1°, 2° and 3° alkyl free radicals.

17. Explain the term steric hinderance with suitable example.

18. Discuss the mechanism of Friedel Crafts acylation reaction.

19. Write a brief note on meta directing groups aromatic electrophilic substitution reactions.

$(5 \times 5 = 25 \text{ marks})$

Section C

Answer any **one** *question.*
The question carries 11 marks.

20. Discuss Bayer's strain theory. Explain its merits and limitations.

21. a) Illustrate the application of ozonolysis in locating the position of the double bond in an alkene.

b) Explain oxymercuration - reduction reaction with a suitable example.

$(1 \times 11 = 11 \text{ marks})$