LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **CHEMISTRY**

SECOND SEMESTER – **APRIL 2019**

16/17/18UCH2MC01– CHEMISTRY OF HYDROCARBONS

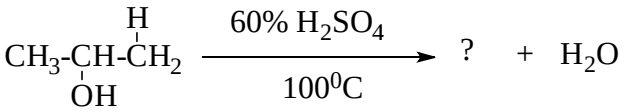
Date: 02-04-2019 Dept. No. Max. : 100 Marks

Time: 01:00-04:00

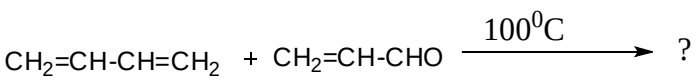
PART – A

Answer all the questions: **(10 x 2 = 20 marks)**

1. What are homolytic and heterolytic cleavages? Give an example for each.
2. Write any two uses of acetylene.
3. What are the conditions necessary for resonsnce?
4. Draw the axial and equatorial positions of cyclohexane.
5. Complete the reaction

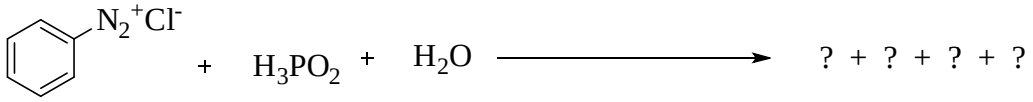


6. Complete the reaction



7. Draw the structure corresponding to the following IUPAC name

   3,5-dimethyl-4 hexen-1-yne.
8. Is cyclooctatetraene aromatic (or) nonaromatic? Give reason
9. Complete the reaction

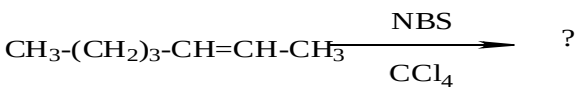


10. State Markownikoff's rule.

PART – B

Answer any eight questions: (8 X 5 = 40 marks)

11. Tropyliumcation is more stable than triphenylmethyl carbocation. Why?
12. Explain: Baeyer strain theory. How do cycloalkanes deviate from normal tetrahedral angle?
13. a) Complete the reaction



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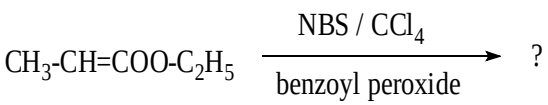


14. Explain with mechanism: Diels-Alder reaction.
15. Benzoic acid forms methyl ester with methanol and hydrogen chloride but under the same conditions di-ortho substituted benzoic acid fails to form ester. Why?
16. Write short notes on a) Corey-House synthesis b) Wurtz reaction.

17. Explain the acidic nature of acetylenes.

18. How does ozone react with acetylene and propylene?

19. Why is α-Chloro Propionic acid stronger acid than β-Chloro Propionic acid?

20. Explain: Friedel-Crafts acylation with an example.

21. Why does methoxy group (-OCH_3) act as an ortho-para director in aromatic electrophilic substitution reactions?

22. How can Huckel's rule be used to justify the aromatic nature of benzene and naphthalene?

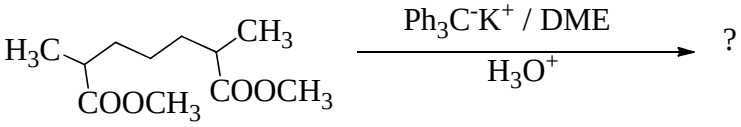
PART – C

Answer any four questions: (4 X 10= 40 marks)

23. a) Write the generation methods of benzyne ,carbonium ions and carbanions . **(6)**

b) Explain: Hybridization of C_2H_4. **(4)**

24. a) Complete the following reactions



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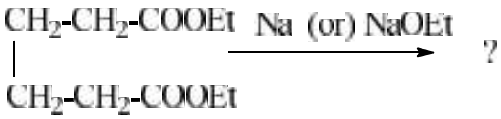

25. Explain Hoffmann &Saytzeff rules in alkenes with an example.

26. Write the mechanism of a) Addition of water with CH≡CH b) Addition of Boron hydride with CH≡CH

27. a) Explain Haworth's synthesis of Anthracene .

b) How will you prepare 9, 10 anthraquinone from anthracene.

28. a) What is keto-enoltautomerism? Give an example.

b) Write a short note on mesomeric effect.

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