



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

SECOND SEMESTER – APRIL 2017

16UCH2MC01- CHEMISTRY OF HYDROCARBONS

Date: 22-04-2017
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART-A

Answer ALL the questions. Each question carries two marks:

(10 x 2 = 20 marks)

1. Mention the hybridization and geometry of benzene.
2. What is meant by heterolytic cleavage?
3. How will you prepare benzene from n-hexane?
4. What is meant by torsional strain?
5. Draw the cis and trans isomers of 2-butene.
6. State Saytzeff rule.
7. What happens when sodium acetylide reacts with ethyl bromide?
8. How will you synthesize acetone from propyne?
9. State Huckel's rule.
10. What happens when phenanthrene is treated with potassium dichromate and sulphuric acid?

PART-B

Answer EIGHT questions. Each question carries five marks:

(8 x 5 = 40 marks)

11. Write a short note on mesomeric effect.
12. Explain the formation and stability of benzyne.
13. Describe steric effect with suitable example.
14. Explain Baeyer's strain theory.
15. Describe the preparation of cyclopentane by Dieckmann's ring closure.
16. Write a note on peroxide effect in addition reactions.
17. Explain E-Z notations with suitable examples.
18. Discuss the mechanism of preparation of alkyne by dehydrohalogenation.
19. Explain the acidic nature of alkynes.
20. How will you synthesize p-bromonitrobenzene and m-bromonitrobenzene from benzene?
21. Explain the mechanism of nitration of benzene.
22. How is anthracene isolated from coal-tar? Mention the oxidation reaction of anthracene with sodium dichromate and sulphuric acid?

PART-C

Answer any FOUR questions. Each question carries ten marks:

(4 x 10 =40 marks)

23. a. Discuss the stability and ease of formation of free radicals.
b. Explain the hybridization and geometry of acetylene.
24. a. Explain the mechanism of chlorination of methane.
b. Discuss the conformational analysis of ethane.
25. a. Describe the allylic bromination of NBS.
b. Discuss the mechanism of Ziegler-Natta polymerization.
26. a. Discuss the mechanism for the reaction of propene with excess of concentrated HBr.
b. Explain the mechanism of ozonolysis of alkyne followed by oxidation with H_2O_2 .
27. a. Briefly discuss about keto-enol tautomerism.
b. Describe Haworth's method for the synthesis of naphthalene.
28. a. Discuss the mechanism of Friedel-Craft alkylation and acylation of benzene. **(8)**
b. What happens when naphthalene is heated with oxygen in the presence of vanadium pentoxide? **(2)**
