LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

SECOND SEMESTER – APRIL 2017

CH 2506- CHEMISTRY OF HYDROCARBONS

Date: 04-05-2017 Dept. No. Max. : 100 Marks
Time: 01:00-04:00

PART- A

Answer **ALL** questions (10 x 2 = 20)

1. (i) Give the IUPAC name of $CH_3CH(OH)CH_2COCH_3$.

   (ii) Write the structural formula of butanal.

2. Define bond energy.

3. How will you convert n-hexane in to benzene?

4. How will you prepare ethane by Kolbe's electrolytic reaction?

5. What is Diel's Alder reaction? Give an example.

6. Predict the product

   (i) $CH_3CH_2CH_2CH_2OH \xrightarrow[\Delta,\ 140\ ^oC]{Con.\ H_2SO_4}$?

   (ii) $CH_3CH=CH_2 \xrightarrow{HOCl}$?

7. How will you prepare acetylene by Kolbe's reaction?

8. How will you prepare propyne from acetylene?

9. What happens when anthracene is treated with acidified sodium dichromate?

10. What is mesitylene? How will you prepare it?

PART- B

Answer any **EIGHT** questions (8 x 5 = 40)

11. Explain homolytic and heterolytic cleavages with examples.
12. Describe aromaticity and antiaromaticity with examples.
13. Discuss the mechanism of addition of HBr to propene.
14. Explain Saytzeff and Hoffmann rules with suitable example.
15. Account the reason for the stability of conjugated dienes than other dienes with examples.
16. Write notes on (i) Wurtz reaction (ii) Dieckmann's cyclization.

17. How will you prepare the following
    (i) n-Butane from ethyl bromide
    (ii) Ethane from acetylene
    (iii) Propane from acetone
18. Write the various possible structural formulae of alkane with molecular formula C_6H_{14} and write their IUPAC name.
19. Explain the acidity of acetylene with suitable examples.
20. How will you prepare alkynes by dehydrohalogenation? Explain its mechanism.
21. Describe the preparation of benzene from coal tar.
22. Enumerate the synthetic applications of naphthalene.

PART- C

Answer any **FOUR** questions **(4 x 10 = 40)**

23. (a) What is meant by resonance? Discuss the applications of resonance to carbondioxide and benzene. **(6)**

    (b) Explain keto-enoltautomerism with suitable example. **(4)**

24. (a) Give a brief account on Ziegler Natta catalyzed polymerization. **(6)**

    (b) How does Ethylene react with the following **(2 + 2)**

    (i) $KMnO_4$ (ii) H_2O

25. Give a brief account on Bayer's strain theory and theory of strainless rings.

26. How does propyne react with the following? Explain with mechanism **(5 + 5)**

    (a) Hydroboration (b) Ozonolysis

27. Explain the following reaction of benzene with mechanism **(5 + 5)**

    (a) Nitration (b) Friedel Craft's reaction

28. (a) Describe hyperconjugation with an example. **(4)**

    (b) What is decalin? How will you prepare it? **(1+1)**

    (c) How does cyclopentane react with H_2/ Ni and Br_2/ Light **(2+2)**

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