Bachelor of Science (B.Sc.) (Part-I) First Semester (Old)

CHE102 - Chemistry : Paper-II (Organic Chemistry)

P. Pages : 2 **GUG/W/18/1203**

Time : Three Hours * 0 9 1 6 * Max. Marks : 50

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw chemical equation wherever necessary.

1. a) What is fission of covalent bonds? Explain the types of fission of covalent bond with example. **5**

b) Explain the following reaction with examples. **5**
i) Elimination reaction ii) Rearrangement reaction

OR

c) Discuss Inductive effect. **2½**

d) Explain hybridization in ethylene. **2½**

e) What are carbocations? Explain stability of carbocations. **2½**

f) Explain substitution reaction with example. **2½**

2. a) Explain optical activity of Tartaric acid. **5**

b) What is resolution? Explain its different methods of resolution. **5**

OR

c) Explain geometrical isomerism of maleic and fumaric acid. **2½**

d) Discuss conformation of ethane. **2½**

e) What is isomerism? Give its different types. **2½**

f) Discuss sequence rule for R-S nomenclature. **2½**

3. a) Explain Bayer's strain theory with its draw backs? **5**

b) Give preparation of cycloalkane by- **5**
i) Freund's method ii) Dickmann's method

OR

c) What are dienes? Give its classification. **2½**

d) Explain oxidation of cycloalkane with example. **2½**

e) Explain Kolbe's synthesis for preparation of alkane. **2½**

f) Explain polymerization of alkene with example. **2½**

4. a) Explain structure and orbital diagram of benzene. **5**

b) What is orientation? Discuss O, P orientating effect in – OH group in phenol. **5**

OR

c) Explain Huckel's rule of aromaticity. **2½**

d) Discuss Birch reduction with example. **2½**

e) Explain activating and deactivating groups with example. **2½**

f) Explain nitration in benzene. **2½**

5. Attempt **any ten.** **1x10=10**

1) Write bond angle in SP and SP^2 hybridization.

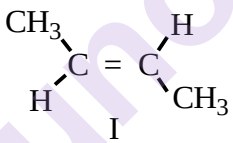
2) Define free radicals.

3) Define electromeric effect.

4) Draw Newman projection formula for ethane.

5) Define Asymmetric synthesis.

6) Identify cis & trans forms of following.



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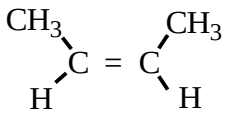


II

7) Define octane number.

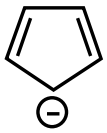
8) Explain oxidation of ethene in presence of mild oxidizing agent.

9) State Markownikoff's rule.

10) What is Friedal-craft alkylation?

11) Identify O, P orientating groups in the following $-OH, -NO_2$.

12) Which compound of following is aromatic?

i) 
(a)

ii) 
(b)

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