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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(BT) (2013 to 2017) (Sem.–3)

ORGANIC CHEMISTRY

Subject Code : BSBT-201

Paper ID : [F0212]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a) Why is iso-propyl free radical more stable than n-propyl free radical?

b) What is no-bond resonance?

c) What is the difference between inductive and electromeric effect?

d) Which is more reactive towards electrophilic addition reaction, ethene or ethyne?

e) Differentiate between isolated and conjugated dienes.

f) How many sigma bonds are there in molecules of ethane and ethene?

g) Benzene is an unsaturated hydrocarbon yet it fails to give Baeyer reagent test. Why?

h) On what factor does the stability of carbanion depend?

i) What is the difference between a singlet and triplet carbene?

j) Why is cyclopropane the least stable member of cycloalkanes?

SECTION-B

2. Discuss giving examples the structures of arynes and carbenes.

3. Write a short note on ozonolysis of olefin.

4. Why is benzyl chloride more reactive than chloro benzene?

5. What are carbocations? Discuss their stability order.

6. What is delocalized chemical bond? What are its effects? Give examples.

SECTION-C

7. Complete the following reactions:

a) $\text{Phenol} + \text{aq.Br}_2 \longrightarrow$ .....

b) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-MgBr + CO_2 \xrightarrow{THF}$ .....

c) $\text{Phenol} + HCHO \xrightarrow{H^+}$ .....

d) $\text{Benzene} + Cl_2 \xrightarrow[h\upsilon]{}$ .....

e) $CH_3-CH_2-\underset{\displaystyle Br}{\underset{|}{CH}}-CH_3 \xrightarrow[\text{alc . KOH}]{}$ .....

8. Discuss the mechanism of aromatic electrophilic substitution. Which is rate determining step? Also draw the energy profile diagram of the reaction.

9. a) Between alcohol and phenol which is more acidic? Explain using resonating structures.

b) Discuss the mechanism of acid catalyzed dehydration of alcohols.