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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(BT) (2014 to 2017) (Sem.-3)

**ORGANIC CHEMISTRY**

Subject Code : BSBT-201

M.Code : 47034

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) Define Resonance Energy. How does it affect the stability of the molecule?
- b) Explain that aryl halides are less reactive than alkyl halides.
- c) What are free radicals? Discuss the structure of a simple alkyl free radical.
- d) What is isotope labeling? Discuss its importance in determining the mechanism of an organic reaction.
- e) Explain briefly radical polymerization with suitable example.
- f) What do you understand by (4+2) cycloaddition reactions?
- g) Draw the orbital structure of acetylene.
- h) Although benzene contains three double bonds, it resists addition reactions. Why?
- i) Why phenol has smaller dipole moment than methanol?
- j) How will you convert an acid chloride into anilide?

**SECTION-B**

2. Spectroscopic measurements indicate that both the C-O bonds in sodium formate and all the C-C bonds have the same bond lengths of 1.27 Å and 1.39 Å respectively. Explain.
3. Out of  $(\text{CH}_3)_3\text{C}^+$  and  $(\text{CD}_3)_3\text{C}^+$ , which carbocation is more stable and Why?
4. What is Lederer-Manasse reaction? Give its mechanism. Using this reaction, how will you explain the formation of Bakelite from phenol and formaldehyde?
5. Dehydration of 1-butanol and 2-butanol give the same mixture of alkenes. Explain.
6. Comment on the statement "*Delocalization alone is not a sufficient criterion for a molecule to exhibit aromaticity*".

**SECTION-C**

7.
  - a) Discuss briefly the conformations of cycloalkenes.
  - b) Briefly discuss the methods of preparation of conjugated dienes.
8.
  - a) Write a detailed note on allylic halogenation.
  - b) Though benzene is an unsaturated hydrocarbon yet it fails to give Baeyer's test. Explain.
9.
  - a) How will you prepare phenols from Grignard's reagent?
  - b) How will you prepare n-valeric acid from acetoacetic ester and benzoic acid from benzene (using nitrile synthesis)?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**