

Roll No.

Total Pages : 04

GSQ/D-20

1066

CHEMISTRY

Organic Chemistry

Paper : XVII (CH-303)

Time : Three Hours]

[Maximum Marks : 32

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory.

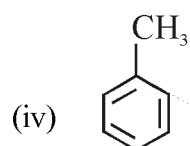
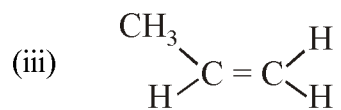
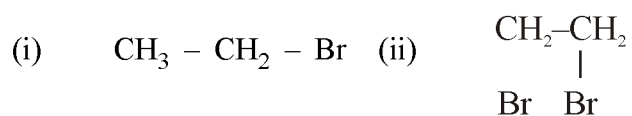
Attempt *four* more questions, choosing *two* questions from each Section.

1. (a) Define carbohydrates. How are they classified ? **2**
- (b) What are equivalent and non-equivalent protons ?
Explain with examples. **2**
- (c) How will you differentiate between cis and Trans
1, 2-Dibromocyclopropane using PMR spectroscopy ?
2
- (d) What is Grignard's reagent ? Explain method of
preparation of Grignard's reagent. **2**

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Section A

2. (a) How many PMR signals are expected from the following compounds : 2



- (b) Explain shielding and deshielding effects in PMR spectroscopy. Explain with examples. 2
- (c) How can you differentiate between 1, 2-Dibromoethane and 1, 1-dibromoethane using PMR spectroscopy. 2
3. (a) What is spin-spin coupling in PMR spectroscopy ? Explain with examples. 2
- (b) What is coupling constant ? How can be splitting constant used to distinguish between cis and trans isomers ? 2
- (c) Discuss PMR spectra of ordinary ethanol and ultra pure ethanol. Explain the difference between them. 2

4. (a) How can PMR spectroscopy be used in differentiating ethane, ethene and ethyne ? 2
- (b) What do you mean by chemical shift ? Discuss the two factors which affect the chemical shift. 2
- (c) An organic compound having the molecular formula $C_{10}H_{14}$ gave the following PMR data : 2
- (i) Singlet δ 0.88, 9H
- (ii) Singlet δ 7.28, 5H
- Assign the structure to the compound on the basis of above data.
5. (a) Write the structural formulae for compounds with the following molecular formula and which give rise to only one PMR signal ? 2
- (i) C_6H_{12} (ii) C_2H_6O (iii) $C_2H_4Br_2$ (iv) C_8H_{10} .
- (b) Explain the following : 2
- (i) Anisotropic effect (ii) Enantiotopic protons.
- (c) Discuss the applications of PMR spectroscopy. 2

Section B

6. (a) What are Glycosides ? Write Haworth Projection formula of methyl α , D (+) Glucopyroniside and β , D (+) Glucopyranoside. 2
- (b) What do you mean by Invert sugar ? Explain. 2
- (c) What are organolithium compounds ? Why organolithium compounds are more reactive than Grignard's Reagent ? 2

