

Roll No.

94087

**B. Sc. Bio-Tech 5th Semester (N. S.)
Examination – November, 2017**

ORGANIC CHEMISTRY

Paper : BT-506/BIN-507

Time : Three Hours] [Maximum Marks : 40

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting at least *two* Questions from each Section.

SECTION – A

1. (a) Explain the principle of NMR spectroscopy. 4
(b) Differentiate between equivalent and non-equivalent protons with suitable examples. 4
2. (a) Discuss the rules of spin-spin splitting of proton signals. 3
(b) What is chemical shift ? How it is measured ? 3

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- (c) What is the use of TMS in NMR spectroscopy. 2
3. (a) Describe the NMR spectra of 1, 1, 2 - tribromoethane and ethylacetate. 4
- (b) Explain : 4
- (i) Anisotropic effect
- (ii) Coupling constant
4. (a) Distinguish between following pairs of compounds using NMR spectroscopy : 4
- (i) Acetaldehyde and Ethanol
- (ii) Acetophenone and Toluene
- (b) How can you distinguish between inter and intramolecular hydrogen bonding using NMR spectroscopy ? 4

SECTION - B

5. (a) Describe : 4
- (i) Glycosides and glucosides
- (ii) Mutarotation
- (b) Explain briefly : 4
- (i) Ruff degradation
- (ii) Mechanism of osazone formation
6. (a) How can you convert arabinose into glucose ? 4
- (b) What are erythro and threo diastereomers ? 2
- (c) Draw the structure of ribose and deoxyribose. 2

7. (a) What do you mean by inversion of sugar ? Draw the structure of sucrose. 4

(b) Draw the structure of starch and cellulose and differentiate between them. 4

8. (a) Starting with methyllithium, prepare the following compounds : 4

(i) Acetaldehyde

(ii) Acetophenone

(b) Why organolithium compounds are more reactive than grignard reagent ? 2

(c) Explain Simmons-Smith reaction. 2