

51203

B. Sc. (Pass Course) 5th Semester
(Regular/Re-appear/Imp.)
Examination, 2022

CHEMISTRY-III
ORGANIC CHEMISTRY

Code : CH-503

Time : 3 Hours**Max. Marks : 30**

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. Question No.1 is compulsory. All questions carry equal marks.

1. (a) Define coupling constant. 1
- (b) Define Anomers. 1
- (c) What happens when methyl magnesium bromide reacts with CO_2 ? 1
- (d) What are diastereotopic protons? 1

- (e) How many kinds of equivalent protons are present in vinyl chloride? 1
- (f) What happens when Diethyl Zinc reacts with water? 1
2. (a) Explain the factors affecting chemical shift. 3
- (b) Predict the number of signals in PMR spectrum of (i) ethylbenzene (ii) trans-1,2-dichlorocyclopropane (iii) Isobutylene. 3
3. (a) What is spin-spin splitting? Explain cause of spin-spin splitting. 3
- (b) Explain magnetically equivalent protons by giving examples. 3
4. (a) Write the number of signals, their positions and relative intensities in PMR spectrum of $\text{C}_6\text{H}_5\text{COCH}_3$. 3
- (b) How many signals will be shown by toluene in PMR spectrum and discuss their positions and splitting also? 3

5. (a) How will you differentiate between Ultrapure Ethanol and Ordinary Ethanol on basis of PMR spectroscopy? 3
- (b) PMR spectrum of a compound having M.F. $C_3H_3Cl_5$ shows to NMR signals (i) Triplet 1H, σ 4.22 (ii) Doublet, 2H, σ 6.07. Give structure for the compound. 3
6. (a) What is mutarotation? Give mechanism of mutarotation. 3
- (b) Explain pyranose structure. Give evidence to show that glucose has pyranose structure. 3
7. (a) Convert Aldose into its isomeric Ketose. 3
- (b) Explain Wohl degradation. 3
8. (a) What are disaccharides? Draw structure of Maltose and Cellulose. 5
- (b) Name the linkage present in amylose. (1)

9. (a) Prepare Grignard reagent. Write precautions to be followed during preparation of Grignard reagent. 3
- (b) What happens when ethyl lithium reacts with (i) CH_3OCH_2Cl (ii) $HCHO$ (iii) Excess of CO_2 .

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