

Model Questions
DSPMU, RANCHI
END SEMESTER EXAMINATION – 2022
B.Sc. SEMESTER-VI
Organic Chemistry-V
Paper CC-XIV
Unit III-NMR Spectroscopy

Sub – Organic Chemistry-V
Paper – CC-XIV

III. NMR Spectroscopy

Section-A
Multiple choice questions.

1. (i) Which of the nuclei show magnetic properties for NMR spectrometry?
(a) ^2H
(b) ^1H
(c) ^{14}N
(d) ^{12}C
- (ii) How many types of orientation take place when a proton is placed in magnetic field?
(a) Four
(b) Three
(c) Two
(d) One
- (iii) Which of the following is used as a standard reference material in NMR spectrometry?
(a) Ethanol
(b) Methanol
(c) Isopropyl alcohol
(d) TMS
- (iv) The term used for measuring 'chemical shift' is
(a) α
(b) β
(c) γ
(d) δ
- (v) NMR spectra are observed in
(a) Radio frequency region
(b) Microwave region
(c) UV region
(d) X-ray frequency region

Section-B
Short answer type questions.

2. What is meant by the term 'chemical shift'?
3. Why TMS is used as a standard reference material in $^1\text{H-NMR}$?
4. Write a detail note on spin-spin coupling.
5. Describe clearly what you know about 'coupling constant(j)'.

Section-C
Long answer type questions.

6. Discuss about the various factors which affect the magnitude of the chemical shift.
7. Describe shielding and deshielding effects involved in NMR spectroscopy.

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