SEMESTER-IV

SPECTROSCOPIC IDENTIFICATION OF ORGANIC COMPOUNDS

PRACTICAL

Programme M.Sc **Max. Marks: 50**
Course code: P20/CHE/DSE/401/P **No. of Hrs/Week : 4Hrs**
Course Type: DSE -3Max. Marks: 50
No. of Credits-2

COURSE OUTCOME

CO1: Understand principle, theory (Basic and advanced) and applications of ^{13}C NMR spectroscopy.

CO2: Understand the principle theory of ^{1}HNMR and its role in structural establishment of organic compounds.

CO3: Emphasise the role of ORD, CD and cotton effect in assigning the absolute configuration of simple and complex molecules.

CO4: Acquire the required knowledge in establishing the molecular structures, assigning the C – C linkages, spatial interactions through various techniques of 2D NMR.

CO5: Interpretation of IR, UV, ^{1}H -NMR, ^{13}C NMR, and mass spectral data to identify the structure of unknown organic molecules.

Spectroscopic identification of Organic Compounds

Identification of unknown organic compounds by interpretation of IR, UV, ^{1}H -NMR, ^{13}C NMR, and mass spectral data (two examples with 2D-NMR). A minimum of 30 representative examples should be studied;

Reference books:

1. Introduction to Spectroscopy – D. L. Pavia, G.M. Lampman, G. S. Kriz, 3rd Ed. (Harcourt College publishers).
2.Spectrometric identification of organic compounds R. M. Silverstein, F. X. Webster, 6th Ed.John Wiley and Sons.
3. Spectroscopic methods in organic chemistry - D. H. Williams and I Flemming McGraw Hill
4. Absorption spectroscopy of organic molecules – V. M. Parikh
5. Nuclear Magnetic Resonance – Basic Principles- Atta-Ur-Rehman, Springer- Verlag (1986).
6. One and Two dimensional NMR Spectroscopy – Atta-Ur-Rehman, Elsevier (1989).
7. Organic structure Analysis- Phillip Crews, Rodriguez, Jaspars, Oxford University Press (1998)
8. Organic structural Spectroscopy- Joseph B.Lambert, Shurvell, Lightner, Cooks, Prentice-Hall (1998).
9. Organic structures from spectra –Field L.D., Kalman J.R. and Sternhell S. 4th Ed. John Wiley and sons Ltd.

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PRACTICAL MODEL PAPER

Course Code:P20/CHE/DSE/401/P **Max Marks: 50**
Time: 3Hours

1) Interpret the given spectral data (IR, UV, ^{1}H -NMR, 2D-NMR, ^{13}C NMR, Mass) of two compounds and deduce the structures by following a systematic procedure? (CO1,CO2, CO3, CO4& CO5) 2 x17½ =**35M**

2) Record +Attendance **5M**

3) Viva **10M**