Total No. of printed pages = 2

MPC 201T

Roll No. of candidate | | | | | | | | | | |

2023

M.Pharm. (Pharmaceutical Chemistry) 2nd Semester End-Term Examination

ADVANCED SPECTRAL ANALYSIS

Full Marks – 75 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer *all*: (10 × 2 = 20)

   (a) Using Wodward-Fieser rule calculate the λ max of para-methyl phenol.

   (b) Mention the IR range for N-H (Str) and O-H (Str).

   (c) Mention the advantages of 2D NMR over 1D NMR

   (d) Explain about isotope peaks found in mass spectrometry.

   (e) Mention why TMS is taken as standard in NMR.

   (f) Enlist the basic difference between DSC and TGA.

   (g) Define Chromophore with suitable examples.

   (h) With example state the difference between emission and absorption spectroscopy.

   (i) Mention the isotopes generally used in radio immunoassay.

   (j) Explain how flash chromatography is different to HPLC.

2. Answer any *Seven* : (7 × 5 = 35)

   (a) Write a note on Woodward-Fieser rule.

   (b) Write a note on the vibrations of IR Spectroscopy.

   (c) Explain about NOSY and COSY with their application.

   (d) Explain about Mc. Lafferty rearrangement.

   (e) Write a note on HPTLC.

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(f) Draw the probable IR spectrum of Paracetamol with special emphasis on the functional group region.

(g) In short explain about Raman spectroscopy.

(h) Explain the principle of radioimmunoassay.

(i) Taking one example, explain about any of the 2D NMR experiment.

3. Answer *any two* : (2 × 10 = 20)

(a) Explain the principle, instrumentation and working of GC-MS. (10)

(b) What is ELISA? Explain the different types of ELISA in details. Enlist some applications of ELISA. (10)

(c) Explain the different type fragmentation in alkyl halide, alcohols, amines and carbonyl compounds. (10)