



UNIVERSITY OF JAFFNA, SRI LANKA  
FACULTY OF ALLIED HEALTH SCIENCES  
FOURTH YEAR FIRST SEMESTER EXAMINATION IN BPharmHons-2021

PHARMACEUTICAL ANALYSIS- PHAPA 4114

PAPER II

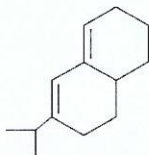
Date: 13.03.2023

Time: 2 Hours

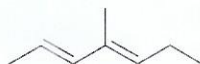
ANSWER ALL THE SIX QUESTIONS

- 1
  - 1.1 Define solvent extraction. (10 Marks)
  - 1.2 Write the theory of solvent extraction. (30 Marks)
  - 1.3 List the methods used to prepare the crude extracts from the herbals? (10 Marks)
  - 1.4 Briefly discuss methods used to prepare the crude extracts from the herbals. (50 Marks)
  
- 2
  - 2.1 State the basic principle of Thin layer chromatography. (20 Marks)
  - 2.2 List the applications of Thin layer chromatography. (30 Marks)
  - 2.3 Explain how the Thin Layer chromatography technique could be used to monitor the synthesis of aspirin. (50 Marks)
  
- 3
  - 3.1 Define the following:
    - 3.1.1 Chromophore (10 Marks)
    - 3.1.2 Auxochrome (10 Marks)
  - 3.2 Give the principle of UV spectroscopy. (20 Marks)
  - 3.3 Briefly describe the instrumentation of Ultraviolet-Visible Spectroscopy. (30 Marks)
  - 3.4 Calculate  $\lambda_{\max}$  of following compounds.

3.4.1



3.4.2

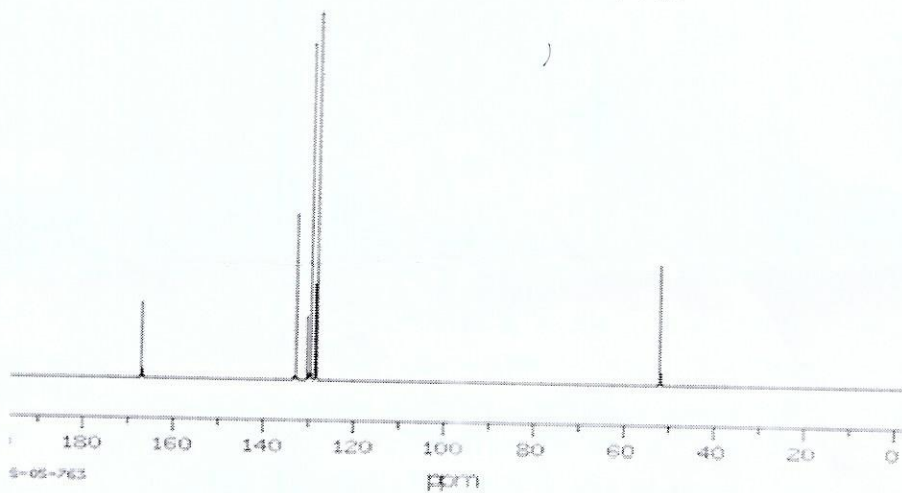
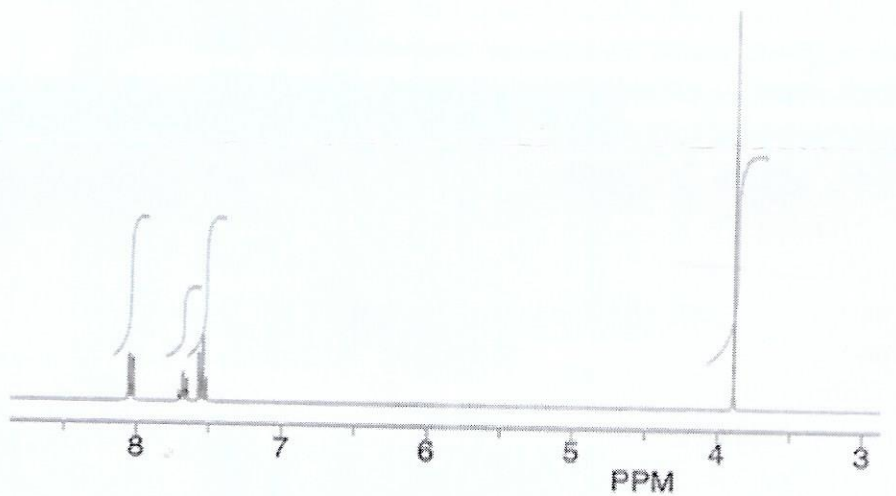
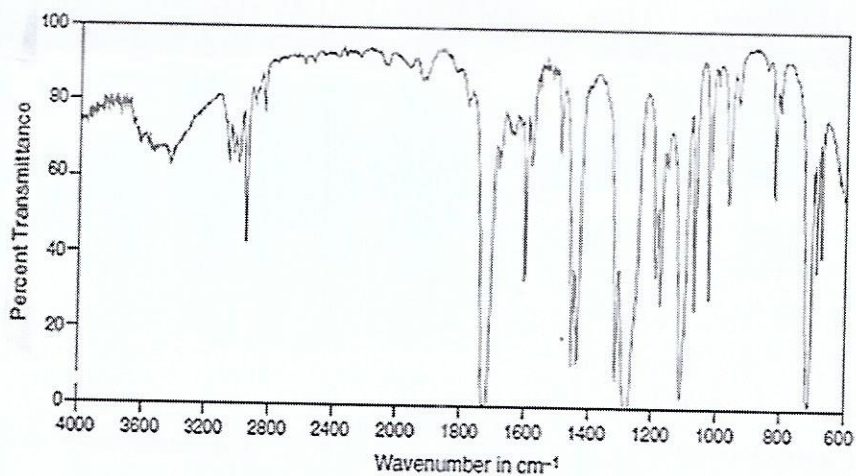


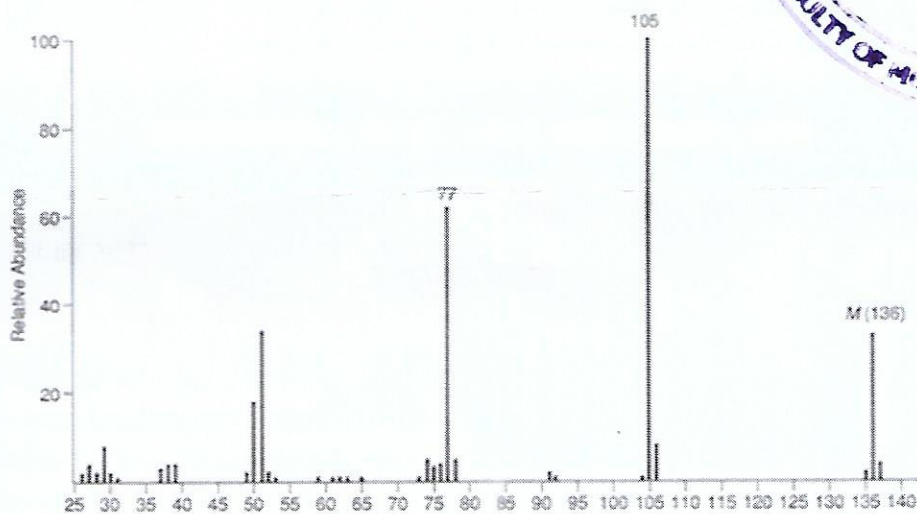
(30 Marks)

- 4
  - 4.1 Define cation and anion exchangers. (20 Marks)
  - 4.2 Give the principle of ion exchange chromatography. (20 Marks)
  - 4.3 Explain how the ion exchange chromatographic technique could be used to purify proteins. (40 Marks)
  - 4.4 Give the applications of size exclusion chromatography. (20 Marks)

5

A Compound X has a molecular formula of  $C_8H_8O_2$ . The structure of the compound X is analysed with IR,  $^1H$ -NMR,  $^{13}C$ -NMR and Mass spectroscopy. The analysed data of spectrums are given below.





- 5.1 Determine the degree of unsaturation for the compound X. **(10 Marks)**
- 5.2 Assign the spectrums of IR,  $^1\text{H-NMR}$ ,  $^{13}\text{C-NMR}$  and Mass. **(70 Marks)**
- 5.3 Deduce the structure of the compound X. **(20 Marks)**
6. 6.1 Write an account on the followings:
- 6.1.1 Nephelometry **(35 Marks)**
- 6.1.2 Flame photometry **(35 Marks)**
- 6.2 List the difference in between the Nephelometry, Turbidimetry and Spectrophotometry. **(30 Marks)**