UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF PHARMACY
FOURTH YEAR FIRST SEMESTER EXAMINATION – 2021
PHARMACEUTICAL ANALYSIS- PHAPA 4114

Paper II

Date: 15.02.2021 **Time: 2 Hours**

ANSWER ALL THE SIX QUESTIONS

1 1.1 Define Distillation. **(10 Marks)**

1.2 Explain the principle of simple distillation. **(30 Marks)**

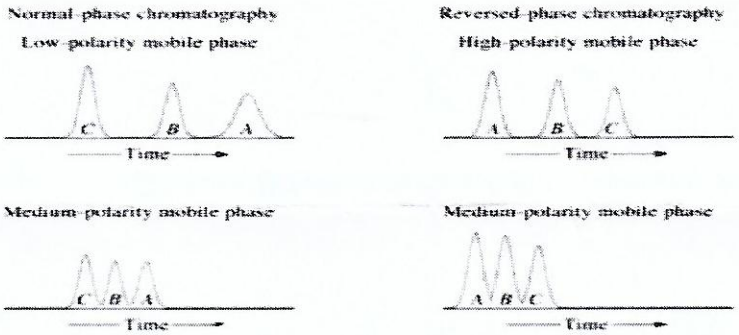
1.3 How is stem distillation differ from simple distillation? **(20 Marks)**

1.4 Explain how steam distillation is used to extract essential oils from seeds. **(40 Marks)**

2 2.1 Explain the basic principle of High-Performance Liquid Chromatography (HPLC)? **(20 Marks)**

2.2 List the parameters which could influence the rention time of solute in HPLC. **(20 Marks)**

2.3 Explain the HPLC chromatograms of compounds A, B and C are given below. **(50 Marks)**

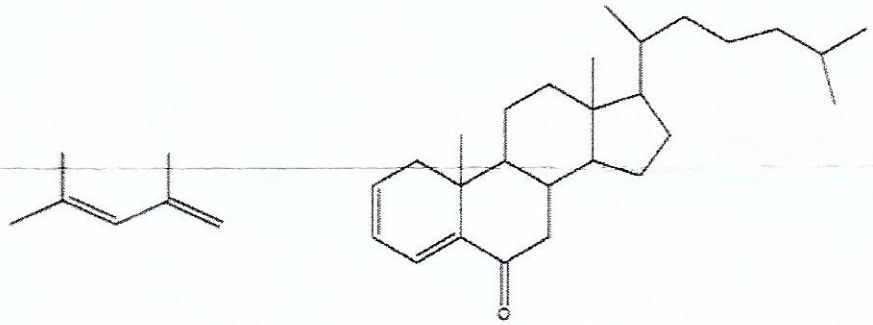


2.4 Compare the polarity of compounds A, B and C using the above chromatograms. **(10 Marks)**

3 3.1 What is chromophore? **(10 Marks)**

3.2 Write an account on the instrumentation of Ultraviolet-Visible Spectroscopy. **(50 Marks)**

3.3 Calculate λ_{max} of following compounds. **(40 Marks)**

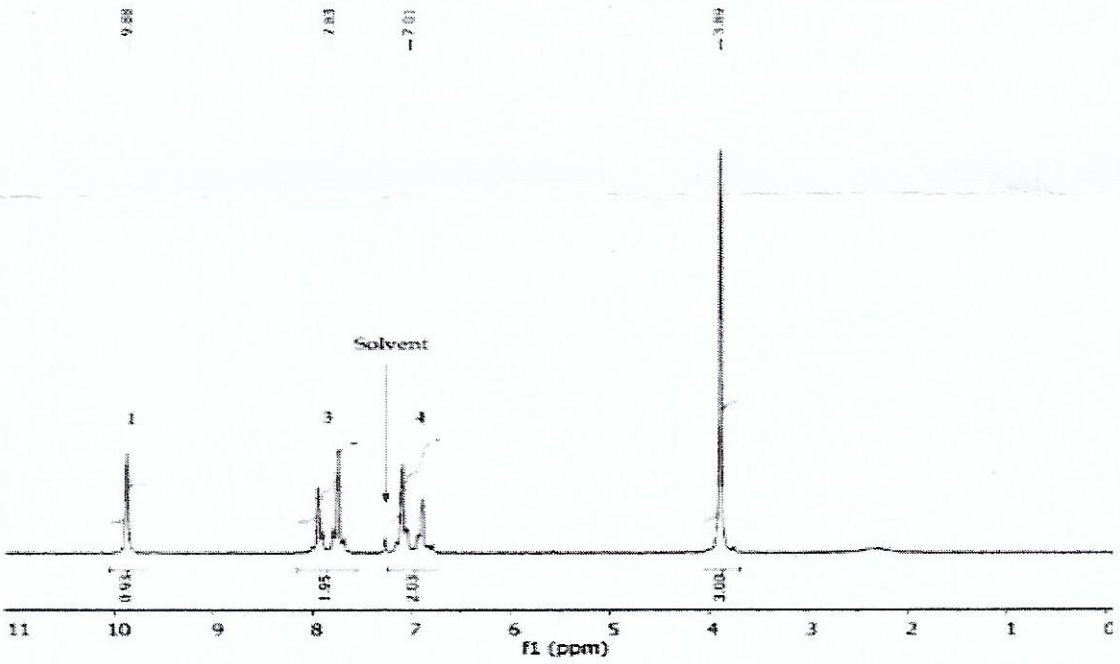


(A) (B)

4 4.1 What is Chemical shift? **(10 Marks)**

4.2 The chemical shift of CH_3F (δ 4.3) is greater than CH_3Cl (δ 3.1). Explain it. **(40 Marks)**

4.3 This ^1H spectrum (MF: $C_8H_8O_2$) exhibits resonances at the following chemical shifts, and with these integrated areas: Find out the chemical structure and justify the answer. **(50 Marks)**



5 5.1 Defines the terms "Quality control" and "Quality Assurance" in pharmaceuticals. **(20 Marks)**

5.2 Compare "Quality control" and "Quality Assurance. **(30 Marks)**

5.3 Write down the steps in Quality control. **(30 Marks)**

5.4 State the advantages of Quality control. **(20 Marks)**

6 6.1 6.1.1 Give the principle of gravity column chromatography. **(30 Marks)**

6.2.1 List the limitations of gravity column chromatography. **(20 Marks)**

6.2 6.2.1 Aspirin is synthesised from salicylic acid with excess of acetic anhydride in presence of strong acid. Explain how the gravity column chromatographic technique could be used to purify the aspirin from impurities. **(30 Marks)**

6.2.2 State the analytical technics used to confirm the purity and structure of aspirin. **(20 Marks)**