

Code No. 13167/PCI

FACULTY OF PHARMACY

**M. Pharmacy (Pharmaceutical Chemistry) II-Semester (PCI) (Suppl.) Examination,
February 2019**

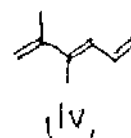
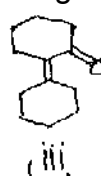
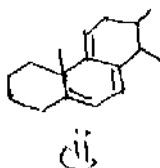
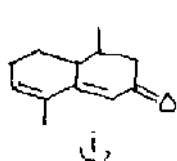
Subject : Advanced Spectral Analysis

Time: 3 Hrs

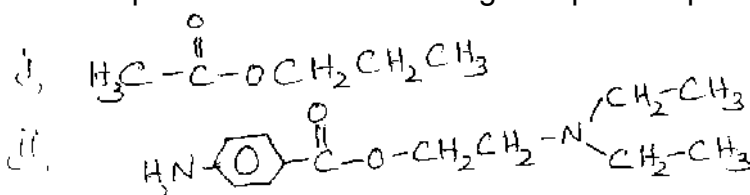
Max. Marks: 75

Note: Answer any five questions. All questions carry equal marks.

- 1 a) Write down the Woodward – Fieser rules for 1,3-butadienes and α, β -Carbonyl Compds. Calculate the λ_{max} for the following.

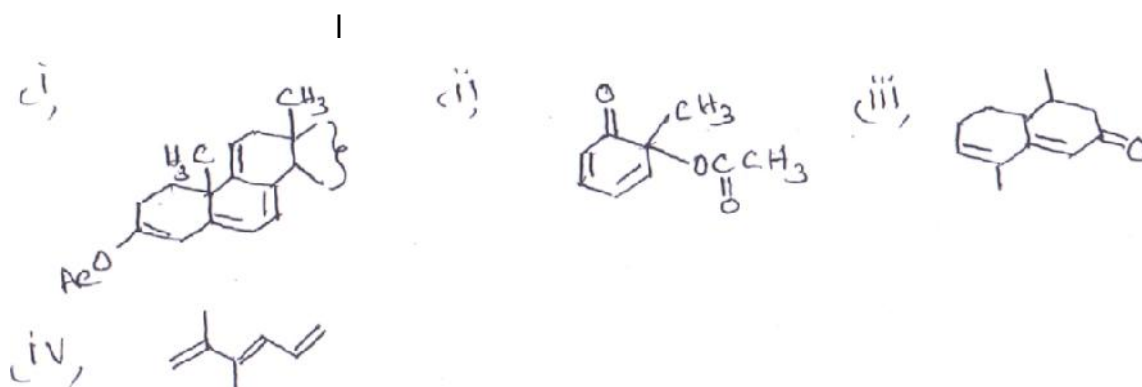


- b) How do you know the presence of $C \equiv N$, NH_2 , OH , SO_2 and NO_2 grps in IR? (Indicate the wave number ranges). (10+5)
- 2 Discuss about any two 2-D NMR techniques in interpretation of structure of organic compounds.
3. a) Discuss the fragmentation patterns of following functional groups in mass Spectrometry
a) Alkanes b) Carbonyl compounds c) Amines d) Alcohols.
b) Explain McLafferty rearrangement.
c) How do you detect the isotopic peaks in mass spectrometry? (8+4+3)
4. Discuss the principle, instrumentation and applications of any two of the following:
a) GC-MS b) HPTLC c) Flash chromatography
5. Discuss the principle, instrumentation and applications of
a) DSC b) Raman Spectroscopy
6. a) Explain the principle and applications of ELISA
b) Discuss radio immune assay of insulin (8+7)
7. Write a note on the following (any two)
a) Super Critical fluid chromatography
b) LC-MS
c) Ion-exclusion chromatography
8. a) Draw a rough 1H NMR spectra for the following with proton splitting pattern



- b) Where shall we expect the $C=O$ stretching for the following aromatic compounds?
a) Aldehydes b) Ketones c) Carboxylic acids d) esters
e) β -lactams f) amides g) anhydrides
h) α, β -Unsaturated carbonyl compounds (8)

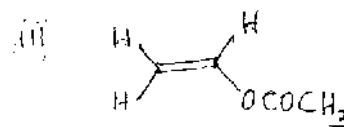
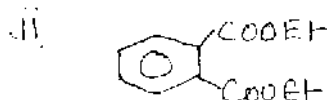
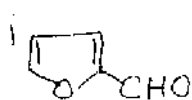
a, b



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8. a) Draw a rough HNMR Spectra for the following compounds with proton splitting



b) How do you interpret the following functional groups in IR? (any six)

i) NO_2

ii) SO_2

iii) NH_2

iv) $\text{R} - \overset{\text{O}}{\parallel}{\text{C}} - \text{OR}$

v) CONH

vi) COOH

vii) CN

viii) CHO

ix) $-\overset{\text{O}}{\parallel}{\text{C}}-$

x) OH

(9+6)

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