

M.PHARM. (PHARMACEUTICAL CHEMISTRY) SEM-II
(CBCS-2019 COURSE): Winter - 2021
SUBJECT : ADVANCED SPECTRAL ANALYSIS

Day Monday
Date 29-11-2021

Time 02:00 PM-05:00 PM
Max. Marks : 75

W-20762-2021

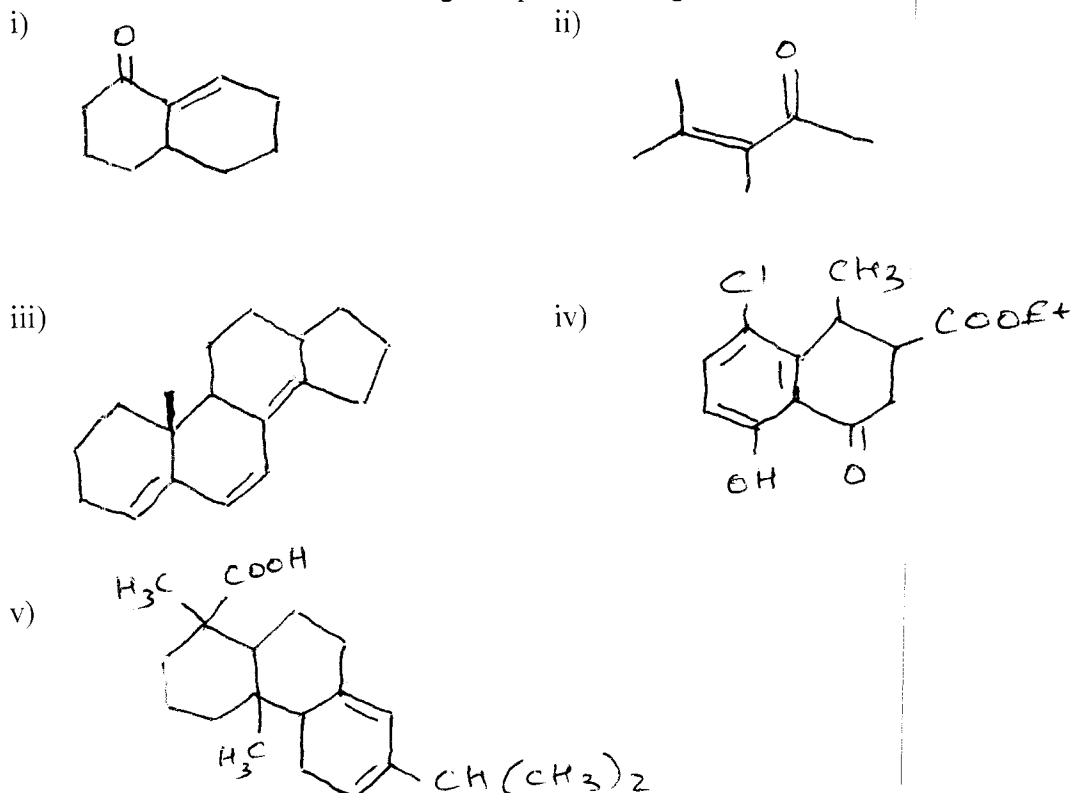
N.B.

- 1) **Q.No. 1 and Q.No. 5** are **COMPULSORY**. Out of the remaining attempt **ANY TWO** questions from **each** section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate **FULL** marks.

SECTION - I

Q.1 Discuss the IR interpretation aspects of organic compounds. **(08)**

Q.2 Calculate λ max for the following compounds using Woodward fieser rule **(15)**



Q.3 a) Giving proper justification for the answer, deduce the structure for the given **(10)**
spectral data :

MF : $C_4H_4N_2$

IR : $3000, 2249\text{ cm}^{-1}$

PMR – ppm 2.2 (s)

CMR : ppm 119 (s, absent in DEPT 135°)

16 (–ve phase in DEPT 135°C)

EIMS : m/z 80, 53 (100%), 40.

b) Give the multiplicities of the following types of carbons in CMR technique **(05)**

- i) Non protonated carbon
- ii) Methylene carbon
- iii) Methyl carbon
- iv) Methine carbon

PTO

- Q.4** Write notes on the following : **(15)**
a) Fragmentation of carbonyl groups and alkanes
b) Applications of LC-MS
c) ATR-IR

SECTION – II

- Q.5** Discuss Radioimmunoassay in detail. **(07)**
- Q.6** Discuss the principle, instrumentation, working and applications of HPTLC **(15)**
- Q.7** Explain Thermal methods of analysis. Write principle, instrumentation and applications of TGA. **(15)**
- Q.8** Write notes on the following : **(15)**
a) ELISA
b) DSC
c) Principle and applications of Raman Spectroscopy
