

Enrollment No:- _____

Exam Seat No:- _____

C.U.SHAH UNIVERSITY

Summer-2015

Subject Code: 4LS03IMA1

Subject Name: Instrumental Methods of Analysis I

Course Name: B.Sc. (Microbiology)

Date: 6/5/2015

Semester:III

Marks: 70

Time:2:30 TO 05:30

Instructions:

- 1) Attempt all Questions of both sections in same answer book/Supplementary.
 - 2) Use of Programmable calculator & any other electronic instrument prohibited.
 - 3) Instructions written on main answer book are strictly to be obeyed.
 - 4) Draw neat diagrams & figures (if necessary) at right places.
 - 5) Assume suitable & perfect data if needed.
-

SECTION I

Q-1 Answer the followings:

- | | |
|---|---|
| a) Define spectroscopy. | 1 |
| b) What is molar extinction co-efficient. | 1 |
| c) State Lambert's law. | 1 |
| d) What is Fluorescence. | 1 |
| e) Give one Example of atomic emission spectroscopy. | 1 |
| f) Write the names of detectors used in UV-VIS spectrophotometer. | 2 |

Q-2 Give answer of followings

- | | |
|--|---|
| a) Write about the nature and properties of electromagnetic radiation. | 5 |
| b) Write about different types of monochromators used in UV-Vis spectrophotometer. | 5 |
| c) Write the principle of UV-Vis spectroscopy. | 4 |

OR

Q-2 Give answer of followings

- | | |
|---|---|
| a) Describe the Lambert-beer law. | 5 |
| b) Write about deviation from Lambert-beer law with reasons. | 5 |
| c) Describe the filters and sample holders used in visible spectrophotometer (colorimeter). | 4 |

Q-3 Give answer of followings

- | | |
|---|---|
| a) Describe the detailed instrumentation of UV spectrophotometer with labelled diagram. | 5 |
|---|---|

Page 1 of 2



C. U. SHAH UNIVERSITY

(Established under Gujarat Private Universities (Amendment) Act 19 of 2009)
Sponsored By YASHWANTRAO CHAVAN TRUST

6-5

- b) Describe the different types of detectors used in UV-Visible spectrophotometer. 5
- c) Describe the sample preparation for IR analysis. 4

OR

Q-3 Give answer of followings

- a) Describe the detailed instrumentation of Atomic Absorption Spectrophotometer. 5
- b) Describe the principle of AAS and Flame photometry. Differentiate them. Write the process involved in AAS. 5
- c) Write about the factors affecting fluorescence intensity. 4

SECTION II

Q-4 Explain followings in brief.

- a) What is FTIR. 2
- b) What is coupling. 2
- c) How the solid sample is prepared in IR analysis. 2
- d) What is cNMR. 1

Q-5 Give answer of followings

- a) Mention the application of Infra Red spectroscopy. 5
- b) Write about the instrumentation of flame photometer. 5
- c) Write the principle of AAS. 4

OR

Q-5 Give answer of followings

- a) Write about the application of Atomic Absorption spectroscopy. 5
- b) Write the principle involved in IR spectroscopy. 5
- c) Write the basic principle of Nuclear Magnetic Resonance. 4

Q-6 Give answer of followings

- a) Write detailed instrumentation of NMR. 5
- b) Write about the chemical shift and coupling in NMR. 5
- c) FTIR is superior to IR analysis. comment. 4

OR

Q-6 Give answer of followings

- a) Describe the instrumentation of IR spectrophotometer with diagram. 5
- b) Write the elementary ideas and application of NMR. 5
- c) Differentiate H NMR and C NMR. 4

