

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name: Modern Analytical Techniques

Subject Code: 5PS01MAT2

Branch: M.Pharm (QA)

Semester: 1

Date: 30/11/2015

Time: 10:30 To 1:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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SECTION – I

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|------------|--|-------------|
| Q-1 | Attempt the Following questions | (07) |
| | a. Write Bragg's equation. | 1 |
| | b. Define Bathochromic shift | 1 |
| | c. Define Hypsochromic shift. | 1 |
| | d. Name the types of Refractive index detector used in HPLC. | 1 |
| | e. Name the two types of elution technique in HPLC. | 1 |
| | f. Name the types of detector used in GC. | 1 |
| | g. Why do amines absorb at higher wavelength in comparison to alcohols? | 1 |
| Q-2 | Attempt all questions | (14) |
| | A Explain Ionization Techniques in mass spectroscopy with emphasis on secondary ionization. | 7 |
| | B Give instrumentation of a HPLC-MS. | 7 |
| OR | | |
| Q-2 | Attempt all questions | (14) |
| | A How number and position of bands is calculated in I.R. spectrum of a compound? | 7 |
| | B Give construction of a FT-IR. What are its advantages over IR? | 7 |
| Q-3 | Attempt all questions | (14) |
| | A What is thermogravimetry? What is its importance? | 7 |
| | B Give theory and method of RIA. | 7 |
| OR | | |
| Q-3 | Attempt all questions | (14) |
| | A What is the principle of DSC? Give applications of DSC. | 7 |
| | B Write principle and applications of U.V. | 7 |



SECTION – II

- Q-4** **Attempt the Following questions** **(07)**
- a. How do the IR spectra of acetone and ethanol differ? **1**
 - b. How DTA helps in preformulation study. **1**
 - c. On hydrogen bonding why stretching frequency in IR gets lowered? **1**
 - d. Define Moving boundary electrophoresis. **1**
 - e. Define Plate Number. **1**
 - f. Define Capacity factor. **1**
 - g. Define Resolution. **1**
- Q-5** **Attempt all questions** **(14)**
- A** What is ion exchange chromatography? Discuss factors affecting the separation in ion exchange chromatography. **7**
 - B** Discuss Principle and Instrumentation of SFC. **7**
- OR**
- Q-5** **Attempt all questions** **(14)**
- A** Write short note on HPTLC. **7**
 - B** What is chemical shift? Discuss factor affecting chemical shift. **7**
- Q-6** **Attempt all questions** **(14)**
- A** How does ionization carry out in MS? .Discuss MALDI & chemical ionization techniques in details. **7**
 - B** Write the principle, instrumentation and application of Fluorimetry. **7**
- OR**
- Q-6** **Attempt all Questions** **(14)**
- A** Explain the principle of DTA .Describe in brief application of DSC. **7**
 - B** How stationary phase is selected in GLC? What are their essential characteristics? **7**

