

**UKA TARSADIA UNIVERSITY**  
**M. Pharm. (Pharmaceutical Analysis) (1<sup>st</sup> Semester)**  
**040060102: Pharmaceutical Analysis-1**

**Duration: 3 hours**

**Maximum marks: 70**

**Instructions:**

1. Attempt all questions
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks allocated to that question.
5. Draw diagrams/figures wherever necessary.

**SECTION-1**

**Q.1] (a) Answer the following: [7 x 1 = 7]**

- 1) What is Thermo- microscopy?
- 2) Define: Validation.
- 3) What do you mean by diffraction?
- 4) Give chemical reaction for estimation of hydroxyl group by acetylation method.
- 5) What is Stokes' law?
- 6) Which reagent is used for calibration of UV-Visible spectrophotometer for control of absorbance?
- 7) What is ISE?

**(b) Attempt any four: [4 x 2 = 8]**

- 1) Explain the principle for quantitative estimation of esters.
- 2) What is the role of 2, 4-DNP reagent in quantitative estimation of carbonyl compounds?
- 3) Write classification of ISE.
- 4) What is a validation master plan?
- 5) The methods used for particle size analysis have limitations in the range of sizes they can cover. Explain.
- 6) Explain the principle of Hydroxylamine hydrochloride-pyridine method for quantitative estimation of carbonyl compounds.

**Q.2]**

**(a) Explain the concept of equivalent sphere and state its significance. Define Stokes' diameter. [5]**

**OR**

**(a) Explain the working of any one crystalline membrane electrode with suitable diagram. [5]**

**(b) Explain the procedure for calibration of IR Spectrophotometer. [5]**

**OR**

**(b) Explain the procedure for calibration of UV-Visible Spectrophotometer. [5]**

**Q.3] Attempt any two**

**[2 x 5 = 10]**

- (a) Discuss, with suitable examples, the significance of solubility and particle size determination in product development.
- (b) Explain the principle and procedure involved in quantitative estimation of amines.
- (c) What is XRD? State its applications in pharmacy.

**SECTION-2**

**Q.4] (a) Answer the following:**

**[7 x 1 = 7]**

- 1) What is FC reagent?
- 2) Write any one identification test for ergotamine tartrate.
- 3) Name the analytical methods used for assay of barbiturates and dosage forms.
- 4) Enlist the reagents used for estimation of sulphur by Messenger's method.
- 5) Enlist the analytical methods used for determination of phosphorus.
- 6) Write the color test for identification of phenobarbitone.
- 7) Name the analytical methods used for determination of sodium.

**(b) Attempt any four:**

**[4 x 2 = 8]**

- 1) Write the general identification tests for glycosides.
- 2) Explain the principle of diazotization titration?
- 3) What is Ninhydrin reagent and where is it used?
- 4) Explain the principle of Step-now's method for estimation of halogens.
- 5) Write any two identification test for ascorbic acid.
- 6) How will you assay vitamin B<sub>1</sub> tablets?

**Q.5]**

- (a) Describe the principle and procedure involved in the use of MBTH in pharmaceutical analysis. **[5]**

**OR**

- (a) Describe the methods used for identification and assay of Chloramphenicol and its dosage forms. **[5]**

- (b) Discuss the role of titrimetric methods in analysis of drugs and dosage forms with suitable examples. **[5]**

**OR**

- (b) Describe the principle and procedure involved in the use of Para dimethyl amino cinnamaldehyde in pharmaceutical analysis. **[5]**

**Q.6] Attempt any two**

**[2 x 5 = 10]**

- (a) Describe the principle and procedure involved in the use of PDAB in pharmaceutical analysis.
- (b) Discuss the principle and procedure involved in analysis of pharmaceutical dosage forms containing sulphonamides.
- (c) Discuss the role of atomic spectroscopy in elemental analysis.