

# UKA TARSADIA UNIVERSITY

B.Pharm. (3rd Semester)

Subject :030020304-Pharmaceutical Analysis I

Time : 2.30 pm to 5.30 pm

Duration : 3 Hours

Date : 26/05/2014

Max. 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 whenever necessary.

## SECTION - 1

### Q-1 (A) Do as directed.

[07]

- I) Define pH.
- II) What is the full form of EDTA?
- III) What is standardization?
- IV) What is formation constant?
- V) Define calibration.
- VI) Which titrant is mostly used in determination of weak acids by non-aqueous titration?
- VII) Write any two examples of salts formed from weak acid and strong base.

### Q-1 (B) Answer the following in brief. (Any 4)

[08]

- I) Classify different solvents used in non-aqueous titration with examples.
- II) Define equivalence point and end point.
- III) Derive equation for pH determination of weak acid.
- IV) Write advantages of EDTA as chelating agent.
- V) Define masking and demasking agent with examples.
- VI) Explain the terms: Quality assurance and Quality control.

### Q-2 Answer the following.

[10]

- A) Define buffer and buffer capacity. Derive Henderson-Hasselbach equation.

## OR

- A) Explain leveling and differentiating effect of solvent with suitable examples.  
B) Discuss applications of complexometric titrations.

## OR

- B) Enlist analytical method validation parameters and explain any two in detail.

### Q-3 Answer the following in detail. (Any 2)

[10]

- A) Define and classify errors. Describe different ways for minimization of errors.
- B) Write short note on pM indicators.
- C) Describe acid-base concepts with suitable examples.

## **SECTION - 2**

### **Q-4 (A) Do as directed.**

**[07]**

- I) Define solubility product constant.
- II) What is formal potential?
- III) What is radioimmuno assay?
- IV) Which method is used to determine moisture content of sample?
- V) What is the use of nitrobenzene in Volhard method?
- VI) Give any two examples of an adsorption indicator.
- VII) Define gravimetric method of analysis.

### **Q-4 (B) Answer the following in brief. (Any 4)**

**[08]**

- I) Calculate molar solubility of silver chloride in water. (  $K_{sp}$  for silver chloride =  $1 \times 10^{-10}$  )
- II) Define nucleation and peptization.
- III) Write the principle of Mohr's method.
- IV) Write the principle of Karl Fisher method.
- V) Explain the terms Iodometry and Iodimetry.
- VI) Write the principle of diazotization method.

### **Q-5 Answer the following.**

**[10]**

- A) Classify different types of electrodes. Describe standard hydrogen electrode in detail.

**OR**

- A) Calculate the molar solubility of calcium fluoride in hydrochloric acid solution,  $pH=3.0$ , given that  $K_{sp}$  for calcium fluoride =  $4 \times 10^{-11}$  and  $K_a$  for  $HF = 6 \times 10^{-4}$ .
- B) Enlist factors affecting solubility of slightly soluble salts and discuss any two in detail.

**OR**

- B) 50.0 ml of 0.100 M sodium chloride is titrated with 0.100 M silver nitrate. Calculate the chloride ion concentration after addition of 10 ml, 50 ml and 60 ml respectively of titrant. ( $K_{sp}$  value for silver chloride =  $1 \times 10^{-10}$ )

### **Q-6 Answer the following in detail. (Any 2)**

**[10]**

- A) Write a short note on oxygen flask combustion method.
- B) Write a short note on Kjeldahl method.
- C) Describe theory of redox indicators.