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**VPM's ADVANCED STUDY CENTRE**  
Bldg. No.6, Thane College Campus, Chendani, Thane 400601  
**POST GRADUATE DIPLOMA IN APPLIED ANALYTICAL CHEMISTRY**  
**( Final Examination 2011 - 2012)**

Date: 02.05.2012

**PAPER - I**

Marks: 100

**SECTION - I**

*Write answers of two sections in two different answer sheets.*

- Q. 1. Answer the following. (Any 4) (20)
- Define molarity, normality, molality, mole fraction, ppm.
  - Explain basic principle of solvent extraction
  - What are the different types of titrations? Explain in brief.
  - Define – Error, Absolute error & Relative error. What is difference between absolute & relative error?
  - Explain basic principles of volumetric analysis
  - Explain various mechanisms involved in solvent extraction of metal ion.
- Q. 2. Answer the following. (Any 4) (20)
- Calculate pH at various stages of titration for strong acid against strong base..
  - Define sampling. What is the purpose of sampling?
  - What is meant by -- a) Proximate analysis b) Trace analysis c) Complete analysis
  - Why EDTA is used as most favorite titrant in complexometric titrations? Give structure of EDTA.
  - Explain different areas in which analytical chemistry is widely used.
  - Write a note on oxidation reduction type of titrations
- Q. 3. Choose correct option out of the following. (10)
- A Measure of the reproducibility of the results is defined as  
a) Accuracy b) Precision c) Error d) None of the above.
  - A measure of the degree of exactness of a measurement from all accepted standard is  
a) Precision b) Accuracy c) Both are correct d) Both are incorrect
  - The process for obtaining a reasonable amount of material that has all the essential properties of the bulk material is called as  
a) Selection b) Sampling c) None of the above d) Both are correct
  - The theory of indicators was first suggested by  
a) Arrhenius b) W. Ostwald c) Lowery-brownsted d) Lewis
  - EDTA types of titrations involve  
a) Direct titration b) Back titration c) All are correct d) Alkalimetric titration
  - The precipitation titration normally involves use of  
a)  $\text{AgNO}_3$  b)  $\text{KNO}_3$  c) Both are used d) Acid
  - A graph of pH versus the no. of  $\text{cm}^3$  of alkali added is called as  
a) Titration curve b) Neutralization curve c) A and B d) None of the above
  - 1 ppm means \_\_\_\_\_  
a)  $1\text{mg} / \text{cm}^3$  b)  $1\text{mg} / \text{dm}^3$  c)  $1\text{gm} / \text{cm}^3$  d)  $0.1\text{gm} / 1000\text{dm}^3$
  - The ratio of the absolute error to the true value is  
a) Relative error b) determinate error c) Indeterminate error d) All are wrong
  - The arithmetic average of a set of observations is  
a) Median b) Mean c) Accuracy d) Precision

--- P.T.O.---

**Paper - I**  
**(Section II)**

(Use different Answer sheet)

Q1 Complete the following (Any 5 )

(05)

- i. ISO stands for
- ii. cGMP stands for
- iii. JIT stands for
- iv. SOP stands for
- v. QMS stands for
- vi. ICH stands for
- vii. Rule for sampling is
- viii. Grammage of a substance is

Q2. Define. (Any 5 )

(05)

- i. Document
- ii. Preventive Action
- iii. Drug
- iv. Accuracy
- v. New or Novel Invention
- vi. Cosmetic
- vii. GLP

Q3. Write notes on (Any 4 )

(20)

- i. Quality Control in chemical industry
- ii. Purpose of Stability testing & Factors affecting drug stability
- iii. Bar Coding
- iv. 5 S Program
- v. Limit test for Arsenic by I. P. method.
- vi. ISO

Q4. Answer in Brief. (Any 3)

(12)

- i. Describe limit test for Iron and Chloride by I. P. method.
- ii. What is a Trademark ? What is Geographical Indication ?
- iii. Describe the steps to be followed in order to achieve objectives of Quality Assurance.
- iv. What are Quality Circles? What are their advantages?
- v. Which are the main laws governing pharma. & chemical Industry?
- vi. Describe the eight quality management principles included in ISO 9000: 2000

Q5. Write a note on (Any 1)

(08)

- i. Good laboratory practices
- ii. Sampling in Chemical Industry.