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**B. Pharmacy (First Semester) Examination,
April-May 2020**

(PCI Scheme)

(Pharmacy Branch)

PHARMACEUTICAL ANALYSIS-I

(Theory : BP102T)

Time Allowed : Three hours

Maximum Marks : 75

Note : Question paper consists of three parts i.e. Part A, B and C. Part A consist of 20 MCQ's each of 1 mark. All questions are compulsory. Part B consists of 3 long answer questions out of which attempt any two. Each of 10 marks. Part C consists of 9 short question out of which, attempt seven question. Each of 5 marks.

Part-A

(Multiple Choice Questions) 20×1=20

1. (i) Which of the following errors can be eliminated by calibrating the measuring device :
- (a) Random errors
 - (b) Systematic errors
 - (c) Gross errors
 - (d) Definite errors
- (ii) Litmus is used to test either substance is :
- (a) Acidic or alkaline
 - (b) Aqueous or pure liquid
 - (c) Moist gas or dry gas
 - (d) Semi-solid or solid
- (iii) Main types of precipitation titrations are :
- (a) Volhard's method
 - (b) Fajan's method
 - (c) Mohr's method
 - (d) All of the above

- (iv) What is meant by the term 'accuracy' ?
- (a) The level of detail at which data is stored.
 - (b) The extent to which a value approaches its true value
 - (c) The lack of bias in the data
 - (d) The overall quality of the data
- (v) Which of the following is an example of acid base indicators :
- (a) Eosin
 - (b) Phenolphthalein
 - (c) Tartarazine
 - (d) Ninhydrin
- (vi) Phenolphthalein changes color in :
- (a) acids
 - (b) alkalis
 - (c) water
 - (d) salt solutions
- (vii) Most of the acid base indicators are chemically weak acid or weak bases according to :

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- (a) Resonance theory
 - (b) Ostwald's theory
 - (c) Quinoids theory
 - (d) None of these
- (viii) Which one of the following is an example of primary standard substance :
- (a) Sulphuric acid
 - (b) Perchloric acid
 - (c) Potassium hydrogen phthalate
 - (d) Ammonium chloride
- (ix) UV-Visible Spectrophotometer is used in :
- (a) Volumetric titrations
 - (b) Electrochemical titration
 - (c) Spectrophotometry
 - (d) Gravimetry
- (x) Following are the examples of oxidizing agents except :
- (a) Hydrogen peroxide
 - (b) Sulphuric acid

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- (c) Nitric acid
(d) Formic acid
- (xi) Equivalent conductance is related with concentration :
- (a) Inversely
(b) Directly
(c) Not
(d) Logarithmically
- (xii) Hydrogen electrode can be used as :
- (a) Reference
(b) Indicator
(c) Both of the above
(d) None of these
- (xiii) Polarograph is :
- (a) Current v/s Volt graph
(b) DME
(c) Instrument
(d) None of these

(xiv) Residual current in polarography is due to :

- (a) Oxidisable impurity
- (b) Reducible impurity
- (c) Analyte
- (d) All of these

(xv) Solubility of sparingly soluble salts can be determined by :

- (a) Polarography
- (b) Potentiometry
- (c) Conductometry
- (d) IR Spectroscopy

(xvi) Aromatic Amino group is reacted with ... in cold acid solution to form diazonium salt :

- (a) Sodium peroxide
- (b) Sodium Nitrite
- (c) Silver Nitrite
- (d) Sodium hydroxide

(xvii) The masking agent used for complexometric titration with EDTA is :

- (a) CN^{-1}
- (b) Buffer
- (c) Indicator
- (d) All of these

(xviii) Which of the following method is used in water analysis :

- (a) Fajan's method
- (b) Mohr's method
- (c) Volhard's method
- (d) None of these

(xix) Non aqueous titrations are bases on :

- (a) Arrhenius theory
- (b) Lewis theory
- (c) Bronsted-Lowry theory
- (d) None of these

(xx) Amphoteric Solvents are both and character :

- (a) Aprotic, Protophillic
- (b) Protophillic, Protogenic
- (c) Protogenic, Aprotic
- (d) None of these

Part-B

(Long Answer Type Questions) 2×10=20

2. Discuss briefly the theory of acids and bases with the help of relevant example. Explain the law of mass action with respect to acid-base neutralization.
3. Discuss the steps involved in gravimetric analysis with suitable example.
4. Explain with example iodimetry and iodometry. Describe the application of iodimetry and iodometry in determination of a substance.

Part-C**(Short Answer Type Questions) 7×5=35**

5. Discuss briefly the types of error. Explain the term-significant figure. How it is important in pharmaceutical analysis?
6. Write down the properties of primary standards. Describe the method of preparation and standardization of 0.1 M solution of oxalic acid.
7. Discuss the theory of indicator. Discuss the mechanism of ionization of an indicator.
8. Discuss the principle of acidimetric and alkalimetric non-aqueous titration.
9. Discuss the principle and limitations of Volhard's method for estimation of chloride.
10. Discuss briefly the principle of complexometric titration.
11. Describe the method of measurement of conductivity. Discuss the applications of conductometry.

12. What is the principle of the potentiometric titration?

Discuss the advantages of potentiometric titration.

13. Explain the working and instrumentation of Dropping Mercury Electrode.