Exam.Code:0007
Sub. Code: 0632

2012

B.A./B.Sc. (Hons.) Third Semester

Chemistry

Paper – II: Analytical Chemistry – A

Time allowed: 3 Hours | Max. Marks: 22

NOTE: *Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Unit.*

x-x-x

1 (a) Clarify calibration curve.
(b) Define precision and accuracy.
(c) State Nernst equation.
(d) Explicate analytical chemistry.
(e) Explain acid-base equilibria.
(f) Give an example of any qualitative analysis. 1×6

UNIT-I

2 (a) Expound the importance of microbalance and analytical balance for analytical measurements. Out of the microbalance and analytical balance which one is more sensitive. Give the reason for their sensitivity. 2

(b) What do you understand by instrumentation methods of analysis? Discuss the role of instrumentation methods of analysis in analytical chemistry. 2

3 (a) Briefly discuss the quantitative analysis and write all the sampling operation for any qualitative analysis. 2

(b) Pen down the general conditions to choose the instrumentation techniques for the analysis of a sample. Explain with the help of suitable examples. 2

UNIT-II

4 (a) Define organic precipitants and propagation of errors. Explain the uses of organic precipitants and propagation of errors in analytical chemistry. 2

(b) What are significant figures? Write convention of the significant figure using suitable examples. 2

5 (a) Define the followings: (i) median (ii) primary and secondary standards (iii) organic precipitating agent (iv) mean 2

(b) What do you mean by precipitation methods? Write the optimum condition for the precipitation method and different steps used in the gravimetric analysis. 2

UNIT-III

6 (a) Outline neutralization. What criterion is used in selecting an indicator for a particular acid-base titration? Give example. 2

(b) What do you mean by the neutralization titration curve? Why are the standard reagents used in the neutralization-titrations are strong acids and strong bases rather than weak acids and weak bases? Explain. 2

7 (a) Express your view about polybasic acid. Narrate with mechanism, the titration of a polybasic acid with a strong base? 2

(b) What is the indicator? Represent the action of any indicator in acid-base titration. 2

UNIT-IV

8 (a) What do you know about oxidation-reduction techniques? Write the application of different oxidation-reduction techniques. 2

(b) State internal and external indicators. Describe the use of external and internal indicators in the oxidation-reduction equilibria with the help of suitable examples. 2

9 (a) Write the method for the preparation, stoichiometry and application of the Karl-Fischer reagent in redox chemistry. 2

(b) What is redox titration? Explain the chemistry including indicator role in the titration of Mohr's salt with $KMnO_4$ solution 2

x-x-x