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Roll No.

Total Pages : 3

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Dec. 2021

B.Sc (CHEMISTRY) - Vth SEMESTER

Analytical Chemistry (DECC-501)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

- 1. It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
- 2. Answer any three questions from Part-B in detail.*
- 3. Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Give the condition when an analyst decides to perform 'Q' test on the data sets acquired. (1)
(b) Illustrate graphical representation of a general TGA pattern for a crystalline metal salt. (1)
(c) What is the difference between accuracy and precision? (1)
(d) What is Beer-Lambert's Law? (1)
(e) Differentiate between AAS and AES. (1)

- (f) Write the name of technique for the quantitative estimation of trace level of metal ions from water samples. (1)
- (g) What do you understand by potentiometric titration? (1)
- (h) Define distribution ratio and what is its unit? (1)
- (i) Write the name of technique for the quantitative estimation of Ca and Mg from their mixture (oxalate and carbonate). (1)
- (j) Show schematic graph of conductometric titration of weak acid and strong base. (1)

PART - B

2. (a) A Na_2CO_3 sample analyzed using HCl and triplicate results were found as 93.50, 93.58 and 93.43% soda ash. Within what range are you 95% confident that the true value lies ($t = 4.303$)? (3)
- (b) Find the average deviation of following masses.
4.32 g, 4.35 g, 4.31 g, 4.36 g, 4.37 g, 4.34 g. (2)
3. (a) What do you understand by term reverse phase chromatography? Discuss its applications. (2)
- (b) Explain in detail with chemical equations, Ion pair formation mechanism used for solvent extraction. (3)

4. Explain the working of double beam UV-visible spectrophotometer with the help of a well labelled diagram. (5)
5. (a) Discuss the electrodes used in potentiometric measurements. (3)
- (b) Glass Electrode is known as combination electrode. Explain and support your answer with diagram. (2)
6. (a) How will you extract the organic species from aqueous and non-aqueous media? (2)
- (b) How will you develop the chromatogram by using frontal, elution and displacement methods? (3)
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