PRN:		Course Code :	CHS-305

Third Year **B. Sc.** End Semester Examination Winter 2022

Analytical Methods in chemistry

Day and Date: Friday, 16/12/2022 Max Marks: **100**

Time : 02·00pm - 05·00pm Duration: **03** hrs

Instructions: All questions are compulsory.

Use of scientific calculator is allowed.

		Marks	Bloom's Level	CLO
Q.1	**Attempt the following**			
a)	Define indeterminate error and explain normal law of distribution by graphical representation.	08	L2	CLO1
b)	State the Beers law and explain the validity of Beers-Lambert's law.	08	L2	CLO1
c)	Explain the working procedure of double beam UV-Visible spectrometry with a neat labeled diagram.	09	L2	CLO1
	or			
d)	Explain the determination of composition of metal complexes by using Job's method.	09	L2	CLO1
Q.2	**Attempt the following**			
a)	Illustrate the basic principle of IR spectroscopy and give several applications involved in it.	08	L3	CLO2
b)	Illustrate the quantitative estimation of trace metal from water sample by using atomic absorption spectrometry.	08	L3	CLO2
c)	Construct a neat labeled diagram of Flame emission spectrometry and describe the working procedure involved in it	09	L3	CLO2
	or			
d)	IR spectrum of acetone gives two maxima due to C-H vibrations at 1360 cm^{-1} and 3000 cm^{-1}. Identify the stretching and bending mode and express the maxima in μm.	09	L3	CLO3
Q.3	**Attempt the following**			
a)	Describe the basic principle of conductometric and P^H metric titration.	08	L2	CLO4
b)	Explain the quantitative estimation of Ca and Mg from their mixture by TGA analysis.	08	L2	CLO4

SAMPLE QUESTION PAPER FORMAT

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c)	Discuss the graphical representation to determine the equivalence point by using conductometric and potentiometric titration.	09	L2	CLO4
	or			
d)	State the basic principle of Thermogravimetric analysis and explain the instrumentation with neat labeled diagram.	09	L2	CLO4

Q.4 **Attempt the following**

a)	Describe the various factors affecting the solvent extraction technique.	08	L2	CLO5
b)	Discuss the development of chromatograms by using frontal, elution and displacement methods for analysis of sample.	08	L2	CLO5
c)	State the principle of solvent extraction and discuss the various applications of solvent extraction technique.	09	L2	CLO5
	or			
d)	Discuss the basic principle and classification of chromatographic methods of analysis.	09	L2	CLO5

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