BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSC **SEMESTER : V**
BRANCH: CHEMISTRY **SESSION : MO/2023**

SUBJECT: CH303 ANALYTICAL METHODS IN CHEMISTRY

TIME: 3 HOURS **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	What is normal distribution? Differentiate between relative error and absolute error. The results of an analysis are 36.97 g compared with the accepted value of 37.06 g. What is the relative error in parts per thousand	[5]	1	4
Q.1(b)	Differentiate between F test and t test. You are developing a new colorimetric procedure for determining the glucose content of blood serum. You have chosen the standard Folin-Wu procedure with which to compare your results. From the following two sets of replicate analyses on the same sample, determine whether the variance of your method differs significantly from that of the standard method. [Given tabulated value of F for ν_1=6 and ν_2= 5 is 4.95]	[5]	1	5

Your method(mg/dL)	Folin-Wu method (mg/dL)
127	130
125	128
123	131
130	129
131	127
126	125
129	-

Q.2(a)	Differentiate between absorption and emission spectroscopy? Derive Beer Lambert's law?	[5]	2	2
Q.2(b)	Explain using the schematic diagram, principle, instrumentation, working of any one spectrophotometer?	[5]	2	3
Q.3(a)	Give the principle and explain the instrumentation of Thermometric titration with the help diagram.	[5]	3	2
Q.3(b)	Draw and explain the DTA curve of Calcium oxalate monohydrate in CO_2 and air. Discuss any two factor and its effect on DTA curve.	[5]	3	4
Q.4(a)	Name any 4 electroanalytical method and differentiate between them. Also mention advantages and disadvantages.	[5]	4	3
Q.4(b)	Give the principle behind conductometric titration. Draw and explain the conductometric titration of weak acid Vs strong base.	[5]	4	3
Q.5(a)	Discuss any one mechanism and technique of extractions	[5]	5	2
Q.5(b)	Discuss principle, instrumentation and applications of any one chromatographic technique?	[5]	5	2

::::::21/11/2023::::::M