Roll No: _____

B.Sc. (Hons) Biochemistry, Semester-II
Semester Examination, October-November 2023
Paper Title: Tools and Techniques in Biochemistry
Paper Code: BBC-SEC 201

Time: 2 hours **Max Marks: 45**

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any two; Section C: Answer all the questions, each question in this section has an internal choice.

Abbreviations Used: CLO- Course Learning Outcome, PLO- Program Learning Outcome, BTL- Bloom Taxonomy Level: BT level 1- Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create.

Section A (Attempt all questions) **[1x10=10 Marks]**

Q. No	Questions	BTL	CLO	PLO
i.	In size exclusion chromatography smaller molecule elute .....(early/late)	1	5	2
ii.	Energy required for 400 MHz.....	2	1	3
iii.	Subcellular fractionation is done by .....centrifugation techniques.	3	5	2
iv.	Equivalent weight of H_2SO_4 is.....	1	4	3
v.	Retention time.....	2	3	2
vi.	The multiplicity of signal is calculated by using n+1 rule (True/False)	2	4	3
vii.	Gel electrophoresis separates molecules on the basis of.....	1	1	3
viii.	Vibrational mode in CH_4 molecule.....	4	3	2
ix.	Example of anion exchanger.....	4	2	4
x.	Common technique used for determination of metal in a given sample is.....	3	1	3

SECTION B: Long type Questions (Attempt any 2 out of 4) **[12.5X2 = 25 Marks]**

Q. No	Questions	BTL	CLO	PLO
1	Briefly illustrate the principle and instrumentation of IR spectroscopy	2	1	3
2	Explain UV-visible spectroscopy and determine the relative amount of light that is absorbed by the samples, if absorbance of sample is 1 at specific wavelength	2	5	1
3	Define chromatography, its basic components and instrumentation of HPLC.	4	3	2
4	Explain preparatory centrifugation, its type and application .	3	4	4

SECTION C: Short-type Questions. (Attempt all questions, each question has an internal choice) **[5x2=10 Marks]**

Q. No	Questions	BTL	CLO	PLO
1	Draw the proton NMR of Ethyl acetate. **OR** Describe spin-spin coupling with suitable examples.	3	4	3
2	Explain principle and instrumentation of paper chromatography. **OR** Discuss the principles and types of gel electrophoresis	4	3	1

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