



Reg. No.:

Name:

University of Kerala

First Semester FYUGP Degree Examination, December 2025

Discipline Specific Core Course

BIOCHEMISTRY

UK1DSCBCH104 - Physical aspects of biochemistry

Academic Level: 100-199

2024 Admission onwards

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark Each.Answer all questions

Qn No.	Question	CL	CO
1	Define electrophoresis.	RE	3
2	List examples for emulsifying agents.	RE	1
3	Give the mathematical expression for H-H equation.	UN	1
4	Write the value of svedberg unit.	UN	3
5	Name the bond is formed between a hydrogen atom and an electronegative atom like oxygen or nitrogen?	UN	2
6	State the principle of colorimetry.	UN	3

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Explain agarose gel electrophoresis.	UN	3
8	Distinguish hypotonic and hypertonic.	UN	1
9	Write the principle of chromatography.	AP	3
10	Apply your knowledge of the ion product of water to determine whether a solution with 1.0×10^{-5} M OH^- and 1.0×10^{-9} M H^+ is acidic, basic, or neutral, and explain your reasoning.	AP	1

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer:7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	<p>A) Apply the principles of colorimetry to estimate the concentration of an unknown protein solution using a standard curve.</p> <p>OR B) In view of donnan membrane equilibrium explain the differential distribution of ions in different compartment of the body .</p>	AP	3, 3
12	<p>A) Analyze how colloids are classified into different types and explain how each type plays an important role in biological systems.</p> <p>OR B) How do Van der Waals forces influence the interactions between biomolecules.</p>	AN	1, 1
13	<p>A) Compare and contrast paper chromatography and thin layer chromatography.</p> <p>OR B) summarise the principle and application of dialysis.</p>	EV	3, 3
14	<p>A) Formulate the Beer -Lambert's law.</p> <p>OR B) Explain the principle and instrumentation of colorimeter.</p>	CR	3, 4