



Reg. No.:

Name:

University of Kerala

First Semester FYUGP Degree Examination, December 2025

Discipline Specific Core Course

BIOCHEMISTRY

UK1DSCBCH100 - Basic Elements 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	Memorize Colloids	RE	4
2	List two examples of microorganisms that contain DNA as their genetic material.	RE	2
3	Find the pOH of a solution with pH=2.	UN	2
4	Define phosphodiester bond.	UN	3
5	A cell shrinks when put into a solution. Identify the type of solution in which the cell is maintained.	UN	3
6	Why are plant cells more rigid than animal cells?	UN	1

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 the relationship between the pH of a solution and the pKa of a weak acid when the concentration of the conjugate base ($[A^-]$) is equal to the concentration of the weak acid ($[HA]$).	UN	2
8	Explain why peptide bond is said to be rigid and planar?	UN	3
9	Identify the type of linkage commonly seen in a) Nucleic acids b) disaccharides c) triglycerides d) proteins.	AP	3
10	Demonstrate how the results of Miller-Urey experiment support the theory of abiogenesis?	AP	1

Qn No.	Question	CL	CO
11	<p>A)</p> <p>Apply your knowledge to explain how the Donnan equilibrium principle affects the difference in ionic concentration of biological fluids.</p> <p>OR</p> <p>B)</p> <p>Draw a visual comparison of plant, animal, and bacterial cells, highlighting their major differences.</p>	AP	3, 1
12	<p>A)</p> <p>Explain the importance of ester bond, phosphodiester bond and disulfide bonds in the biological system.</p> <p>OR</p> <p>B)</p> <p>Explain the differences between viruses, bacteria, and eukaryotic cells.</p>	AN	3, 1
13	<p>A)</p> <p>Determine which property of colloids (Tyndall effect, Brownian motion, or electrical charge) is most crucial for their stability and why?</p> <p>OR</p> <p>B)</p> <p>Evaluate Henderson- Hesselbalch equation and list out the significance of HH equation</p>	EV	3, 2
14	<p>A)</p> <p>Enumerate the differences between eukaryotic and prokaryotic cell.</p> <p>OR</p> <p>B)</p> <p>Create a table showing the major findings and conclusions of Miller Urey experiment and Joseph Priestly experiment.</p>	CR	1, 1