U7386

Reg. No.: .....

Name:.....

University of Kerala

First Semester Degree Examination,November 2024

Four Year Under Graduate Programme

Discipline Specific Core Course

BIO CHEMISTRY

UK1DSCBCH103 - Biochemical and Biophysical aspects of life

Academic Level: 100-199

Time:1½ Hours **Max.Marks:42**

Part A.

Answer All Questions, Objective Type. 1 Mark Each.
(Cognitive Level: Remember/Understand)
6 Marks. Time: 6 Minutes

Qn. No.	Question	Cognitive Level	Course Outcome (CO)
1.	What is an Arrhenius acid? Give an example to illustrate your answer.	Remember	CO- 1
2	What type of bonds connect the sugar-phosphate backbone in DNA?	Remember	CO-2
3	Explain Brownian movement in the context of colloids and illustrate its application.	Understand	CO-2
4	What structure gives rigidity to plant cells but is missing in animal cells?	Remember	CO-3
5	Name two emulsifying agents.	Remember	CO-2
6	Differentiate osmosis and diffusion.	Remember	CO-2

Part B.

Answer All Questions, Short Answer. 2 Marks Each.
(Cognitive Level: Understand/Apply),**8 Marks**. Time: 24 Minutes

Qn. No.	Question	Cognitive Level	Course Outcome (CO)
7	Define pH and pOH	Understand	CO-1
8	What is a hydrogen bond, and how does it differ from ionic and covalent bonds?	Understand	CO-2
9	What is a peptide bond, and how is it formed between amino acids?	Understand	CO-2
10	Explain the role of bacterial capsule	Understand	CO-3

Part C.

Answer all 4 Questions, choosing among options within each question.
Long Answer. 7 marks each. (Cognitive Level: Apply/Analyse/Evaluate/Create)
28 Marks. Time: 60 Minutes

Qn. No.	Question	Cognitive Level	Course Outcome (CO)
11.	A. Discuss the significance of buffers in biological systems. OR B. Determine the normality of a solution made by dissolving 2 grams of hydrochloric acid (HCl) in 1 liter of solution. (Molar mass of HCl = 36.5 g/mol).	Apply	CO-1
12.	A.Compare and analyze the properties of hydrophilic and hydrophobic colloids. How do their interactions with water differ? OR B. Explain osmosis and its biological significance.	Analyze	CO-2
13.	A. Create a diagram that illustrates and describe the structural arrangement of a eukaryotic cell. OR B. Using a labeled diagram, evaluate the structural and functional differences between plant and animal cells.	Understand	CO-3
14.	A. How are peptide bonds and disulfide bonds formed, and what roles do they play in proteins? OR B. Explain the significance of different non covalent interactions in biological system.	Analyze	CO-2