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| **Discipline: BIOCHEMISTRY** | **Time: 1 Hour 30 minutes (90 Mins.)** |
| **Course Code: UK1DSCBCH100** | **Total Mark: 42** |
| **Course Title: BASIC ELEMENTS OF BIOCHEMISTRY** |  |
| **Semester:1** |  |
| **Academic Level: 100-199** |  |
| **Total Credit: 4, Theory: 3 credits, Practical :1 credit** |  |

**Part A**

**6 Marks. Time: 6 Minutes**

**Objective Type. 1 Mark Each. Answer All Questions**

**(Cognitive Level: Remember/Understand)**

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| **Qn. No** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 1 | List any four organelles of a plant cell. | Remember | CO1 |
| 2 | A cell remains intact when maintained in an isotonic solution. Why? | Understand | CO3 |
| 3 | Why is NH3 considered as a Bronsted base and HCl as a Bronsted acid? | Understand | CO2 |
| 4 | Recall two examples of buffers in the biological system. | Remember | CO2 |
| 5 | Name the strongest chemical bond and the weakest non-covalent interaction. | Remember | CO3 |
| 6 | Illustrate diagrammatically the process of osmosis. | Understand | CO3 |

**Part B**

**8 Marks. Time: 24 Minutes**

**Short Answer. 2 Marks Each. Answer All Questions**

**(Cognitive Level: Understand/Apply)**

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| --- | --- | --- | --- |
| **Qn. No** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 7 | Identify the type of linkage commonly seen in a) Nucleic acids b) disaccharides c) triglycerides d) proteins. | Apply | CO3 |
| 8 | Relate the organelle with its biological function: a) Ribosomes b) Golgi body c) Nucleus d) Mitochondria. | Understand | CO1 |
| 9 | Outline the biological significance of osmosis and diffusion. | Understand | CO3 |
| 10 | Identify the biomolecules containing the following elements a) Mg b) Ca c) Cu d) Fe | Apply | CO3 |

**Part C**

**28 Marks. Time: 60 Minutes,**

**Long Answer. 7 marks each. Answer all 4 Questions, choosing among options**

**within each question.**

**(Cognitive Level: Apply/Analyse/Evaluate/Create)**

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| **Qn.**  **No** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 11 | A. Compare diagrammatically the structure of a plant cell and animal cell.  OR  B. Compare diagrammatically the structure of a prokaryotic and a eukaryotic cell. | Analyse | CO1 |
| 12 | A. Derive Henderson-Hasselbalch equation for an acidic buffer and write its significance.  OR  B. Discuss the role of any 4 macro elements in terms of its occurrence in biomolecules. | Apply | CO2 |
| 13 | A. Differentiate between isotonic, hypotonic and hypertonic solutions.  OR  B. Compare the properties of lyophobic and lyophilic colloids. | Analyse | CO3 |
| 14 | A. Explain the biological significance of any three non-covalent interactions.  OR  B. Explain the biological significance of any three covalent interactions. | Analyse | CO3 |