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Odd Semester Examination 2024 (B.Tech CSE 7<sup>th</sup> semester / Lateral entry)  
**Paper Name: Biology** **Paper Code: BTCSE 702/BTCSE 702 (LE)**  
**: BTECE 702/BTECE 702 (LE)**  
**Time: 3 Hours** **Maximum Marks: 75**

**Section A (Attempt all question; 5x7 = 35 Marks)**

| Q. No. | Questions                                                                                                            | Marks | CO | BL |
|--------|----------------------------------------------------------------------------------------------------------------------|-------|----|----|
| 1.     | What are biological neurons? Give a description about neuron body.                                                   | 5     | 3  | 3  |
| 2.     | Find the transcribed mRNA sequence from given DNA sequence:<br>5'ATCGGGCTAATCGAT3'.                                  | 5     | 5  | 4  |
| 3.     | What are the human made sources of air pollution and how to minimize it?                                             | 5     | 3  | 3  |
| 4.     | Explain Uri-Miller experiments. How Uri-Miller experiment has improved our understanding of origin of life on earth. | 5     | 2  | 4  |
| 5.     | Highlight at least five difference between animal and plant cell.                                                    | 5     | 4  | 2  |
| 6.     | What is biology? Explain at least 3 different fields of biology.                                                     | 5     | 1  | 2  |
| 7.     | Explain the process of food digestion in humans.                                                                     | 5     | 3  | 4  |

**Section B (Attempt any four; 10x4 = 40 Marks)**

| Q. No | Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Marks | CO | BL |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|----|
| 1     | The Levinthal paradox states that if a protein folds by random visiting different conformations it would take far longer than the age of the universe for a protein to fold, while experimentally a protein fold in microsecond. Consider a 51 amino acid long protein, each amino acid in this protein can adopt 3 conformations. Let's assume visiting each conformation takes $10^{-11}$ seconds. Calculate how long it will take for this protein to fold. | 10    | 5  | 5  |
| 2     | Define central dogma, explain the process of Translation.                                                                                                                                                                                                                                                                                                                                                                                                      | 10    | 2  | 4  |
| 3     | What are prokaryotes and eukaryotes? Provide major differences between them.                                                                                                                                                                                                                                                                                                                                                                                   | 10    | 4  | 3  |
| 4     | Answer the followings:<br>a) What are the postulates of Darwinism and Lamarckism?<br>b) Explain Food Chain.                                                                                                                                                                                                                                                                                                                                                    | 10    | 2  | 3  |
| 5     | What is muscle contraction and its types? Explain in detail with diagram.                                                                                                                                                                                                                                                                                                                                                                                      | 10    | 3  |    |
| 6     | What are proteins and its different level of structures? Explain the role of proteins in various biological processes.                                                                                                                                                                                                                                                                                                                                         | 10    | 5  | 5  |