Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **16BI3001** | **Duration :** | **3hrs** |
| **Sub. Name :** | |  |  | | --- | --- | | **STRUCTURAL BIOINFORMATICS** |  | | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Define an example on your own and establish the procedure for secondary structure protein folding prediction using nearest neighbour approach. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Explain the following: i. Peptide bond formation ii. Types of beta sheets and its structural arrangements. | CO1 | 10 |
|  | b. | Discuss the components of protein tertiary and quaternary structures. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Groove binding in B-form of DNA double helix – Explain. | CO1 | 10 |
|  | b. | “Beads on a string”, Explain the arrangements of histone proteins in chromosomal DNA. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Illustrate and describe the cloverleaf secondary structure of tRNA. | CO2 | 10 |
|  | b. | Sketch and give the significance of phospodiester bond. | CO2 | 10 |
|  |  |  |  |  |
| 5. |  | Give a detailed account on structural domain and DNA binding domain arrangements in macromolecular interactions. | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Describe the semantic elements of macromolecular crystallographic information file entities and its representation in structural databases. | CO2 | 20 |
|  |  |  |  |  |
| 7. | a. | Classify structural databases. | CO3 | 5 |
|  | b. | Compare and contrast different formats of data representation in database. | CO3 | 15 |
| (OR) | | | | |
| 8. |  | Enumerate the functionalities of chemical mining python package in structural data predictions and drug discovery process. | CO3 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Elaborate on biopython module Bio.PDB. Write the syntax for reading and writing crystal structure files with examples. | CO3 | 20 |

ALL THE BEST