Date: 07-03-2022

Registration number:



St. Joseph’s College (Autonomous), Bengaluru-27

M.Sc. Botany– ISemester

Semester Examination: **October-2021**

(Examination conducted in January-March 2022)

**BO 7421: Biostatistics & Bioinformatics**

Time- 2 ½ hrs Max Marks-70

T**his question paper contains one printed page and three parts**

1. **Answer Any Ten of Following Questions 2 x 10 = 20 Marks**
2. Contributions of Francis Galton
3. Define Inferential Statistics
4. What is RCBD?
5. Define Concepts of Experimental design
6. Differentiate between Bar Diagram & Histograms
7. Define Networking
8. Applications of Bioinformatics
9. What is Homology Modelling?
10. What is Query Coverage & Identity Percentage?
11. What are Heteroatoms/Hetatoms?
12. Define CADD
13. What are the types of Protein-Ligand Interactions?

**B. Answer Any Five of Following Questions 6 x 5 = 30 Marks**

1. Types of Random Sampling
2. Explain ‘Components of Graph’ with a neat labelled diagram
3. Construct Steam & Leaf plot for the following data

13, 14, 41, 21, 31, 24, 73, 43, 28, 61, 54, 52, 28, 74, 41, 30, 75, 81

1. Write short notes on different Programming Languages
2. Explain Ramachandran Plot in Detail
3. Differentiate between Local & Global Sequence Alignment
4. What are the parts and types of Phylogenetic Tree?

 **C. Answer Any Two of Following Questions 10 x 2 = 20 Marks**

1. Calculate Mean, Median & Mode for the following data and represent it in Bar Diagram

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. of leaves/plant | 5 | 10 | 15 | 20 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| No. of plants | 15 | 34 | 56 | 78 | 123 | 98 | 87 | 77 | 54 | 41 | 23 | 11 |

1. Define Rules of Probability in detail with individual Formulae
2. Write a detailed note on Bioinformatic Databases highlighting uniqueness of each database