

**U.G. 6th Semester Examination - 2021****ZOOLOGY****Course Code : BZOODSHC6****Course Title : Bio-statistics and Bio-informatics**

Full Marks : 30

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer any **ten** questions from the following:

1×10=10

- a) What does 'FASTA' stand for?
- b) Write one limitation of bioinformatics.
- c) Give an application of Bioinformatics.
- d) What is the significance of Correlation?
- e) What is sample space?
- f) What is the importance of 'GeneBank'?
- g) What is the full form of EMBL?

- h) What is degrees of freedom?
- i) What is 'BLAST' used for?
- j) What is Pharmacogenomics?
- k) What do you mean by 'degree of freedom'?
- l) Who is the father of Bioinformatics?
- m) What is mode?
- n) Name one proteomic database.
- o) What is the content of SRS database?

2. Answer any **five** questions of the following:

2×5=10

- a) What is normal distribution? Explain with a diagram.
- b) How is t-test different from ANOVA?
- c) What do you mean by Kurtosis?
- d) What are the scopes of Bioinformatics?
- e) What is probability and its importance?
- f) What is Random variables? Name the different types of random variables.
- g) What is entrez? Which organization developed and maintain the database?
- h) Write about the thumbs rule of skewness.

3. Answer any two **questions** of the following:

$$5 \times 2 = 10$$

- a) Write down the usages of Chi-square test. What are primary biological databases? Give example. 3+2
- b) Calculate the correlation coefficient from the following data set and comment on the relationship between X and Y :

X	2	3	4	5	6	7	8
Y	4	5	6	12	9	5	4

- c) A research study was conducted to examine the differences between older and younger on perceived life satisfaction. A pilot study was conducted to examine the hypothesis. Ten older (over the age of 70) and ten younger (between 20-30) were given a life satisfaction test (known to have high reliability and validity). Scores on the measure range from 0–60 with high scores indicative of high life satisfaction; low scores indicative of low life satisfaction.

1. Compute the appropriate t-test

2. What will be the null hypothesis in this study?
3. What will be the alternative hypothesis?

Older	Younger
45	34
38	32
52	15
48	27
25	37
39	41
51	24
46	19
55	26
46	36