

**U.G. 6th Semester Examination - 2020****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
- What is Bioinformatics?
  - Define negative correlation.
  - What do you mean by bimodal distribution?
  - What is the full form of OMIM?
  - What is the significance of  $p < 0.05$  in t-test?
  - Name one specialized biological database.
  - What do you mean by correlation coefficient?

*[Turn over]*

- SWISS-PROT is a \_\_\_\_\_ database.
  - What will be a researcher conclude if the value of a calculated correlation coefficient is near to zero?
  - Write down the names of two primary nucleotide sequence database.
  - What do you mean by secondary data?
  - Comment on the distribution when a given dataset has mean = median = mode.
  - According to GenBank what is the meaning of [ACCN]?
  - Comment, if a regression line can be straight or curved?
2. Answer any **five** questions of the following:  
2×5=10
- Differentiate between discrete and continuous data with suitable diagram.
  - What is skewed distribution? How does it differ from normal distribution?
  - How could you differentiate interval and ratio scale?
  - Write down the two major goals of Bio-informatics.

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[ 2 ]

- e) Explain "And / Or" situation in the light of sum rule and product rule.
- f) What are the contents of GenBank and PubMed?
- g) How does correlation differ from regression?
- h) In which situation t-test is used?

<b>X</b>	12	9	8	10	11	13	7
<b>Y</b>	14	8	6	9	11	12	3

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

$$5 \times 2 = 10$$

- a) Explain with suitable diagrams how can you correlate outliers with different types of kurtosis.

$$2\frac{1}{2} + 2\frac{1}{2} = 5$$

- b) In dogs black coat colour (B) is dominant over yellow coat colour (b), and straight fur (S) is dominant over curly fur (s). The coat colour gene and the fur texture gene are located on different chromosomes, so they assort independently and are not sex linked. In a cross between two BbSs parents, predict the fraction of offspring with black coat colour and straight fur.
- c) Calculate the correlation coefficient from the following data set and comment on the relationship between X and Y: