

(vii) Computer ROM contains some coding

known as :

- (a) System files
- (b) Data files
- (c) Pinching
- (d) BIOS

(viii) The specimens which have been referred by the author as similar to the type specimen are known as :

- (a) Lectotype
- (b) Holotype
- (c) Neotype
- (d) Isotypes

(ix) Analytical phase of Taxonomy is called :

- (a) Alpha Taxonomy
- (b) Beta Taxonomy
- (c) Gamma Taxonomy
- (d) Omega Taxonomy

Roll No.

Exam Code : J-21

Subject Code—52872

M. Sc. EXAMINATION

(Batch 2020 Onwards)

(First Semester)

ZOOLOGY

MZ-103

Biosystematics and Biostatistics

Time : 3 Hours

Maximum Marks : 70

Note : Attempt any *Five* questions. Q. No. **1** is compulsory. All questions carry equal marks.

1. Objective type questions : 1×14=14

(i) Branch of Taxonomy which evaluates resemblances and differences through statistical methods :

- (a) Cytotaxonomy
- (b) Chemotaxonomy

- (c) Numerical Taxonomy
- (d) Cladistics Taxonomy
- (ii) The connecting link between fish and amphibia :
 - (a) Balanoglossus
 - (b) Chimera
 - (c) Echidna
 - (d) Latimeria
- (iii) Species occupying different geographical area are called :
 - (a) Sympatric species
 - (b) Sibling species
 - (c) Allopatric species
 - (d) Insular species
- (iv) In least squares regression, which of the following is not a required assumption about the error term ε ?
 - (a) The expected value of the error term is one

- (b) The variance of the error term is the same for all values of x
- (c) The values of the error term are independent.
- (d) The error term is normally distributed.
- (v) Name of scientist who coined the term 'Species' :
 - (a) Michel Adanson
 - (b) Georges Buffon
 - (c) Jean Baptiste Lamarck
 - (d) John Ray
- (vi) According to IUCN list 2020, what is the status of Blackbuck ?
 - (a) Endangered species
 - (b) Vulnerable species
 - (c) Extinct species
 - (d) Least concern species

(b) Explain the terms :

(i) Interquartile range

(ii) Quartile deviation. 8

7. What is Pearson Correlation ? Find the value of the Pearson correlation coefficient for the following data : 14

Subject	Age (X)	Glucose level (Y)
1	43	99
2	21	65
3	25	79
4	42	75
5	57	87
6	59	81

Unit IV

8. (a) Describe the concept of random and systematic sampling. 6

(x) The most frequent observation in a data set is called :

(a) Mean

(b) Median

(c) Mode

(d) Range

(xi) Key meant for small groups and quite useful for the non-specialists and field workers :

(a) Box type key

(b) Indented key

(c) Simple bracketed key

(d) Grouped key

(xii) The median and standard deviation of a distribution are 50 and 5 respectively, if each item is increased by 4 :

(a) Median will increase and S.D. will increase

(b) Both will remain same

(c) Median will go up by 2 but S.D. will remain same

(d) Median will increase and S.D. will decrease

(xiii) Analogous structures are a result of :

- (a) Convergent evolution
- (b) Divergent evolution
- (c) Stabilization of selection
- (d) Parallel evolution

(xiv) What is the mean of a Chi-square distribution with 6 degrees of freedom ?

- (a) 4
- (b) 6
- (c) 8
- (d) 12

Unit I

2. Write short notes on the following : $7 \times 2 = 14$

- (a) Cytotaxonomy
- (b) Nominalistic species concept

3. (a) Define traditional evolutionary taxonomy. What do you understand by the terms Phenetics and Cladistics ? 7

(b) What is the importance of weighing of characters in biological classification ? 7

Unit II

4. (a) Give characteristic features, advantages and disadvantages of Simple Non-Bracketed Key. 7

(b) Describe circular key with the help of a suitable example. 7

5. (a) Explain different kinds of type specimen. 8

(b) Explain the following in nomenclature : 6

- (i) Use of Square Bracket
- (ii) Use of Punctuation Marks
- (iii) Stability.

Unit III

6. (a) Differentiate between : 6

- (i) Standard Deviation and Standard Error
- (ii) Mean and Mode

(b) What is Poisson distribution and its properties ? Solve the following :

Births in a hospital occur randomly at an average rate of 1.8 births per hour. What is the probability of observing 4 births in a given hour at the hospital ? **8**

9. What are the different components of computer ? Elaborate the role of Graphics processing unit and Arithmetic and logic Unit.

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