5669

M.Sc. (Previous) Examination – 2024
ZOOLOGY
Sixth Paper
[Biostatistics and Population Genetics]

Maximum Marks: 100

Time Allowed: Three Hours

Note - In M.Sc. Zoology Previous Examination the theory papers will have the following pattern.

Question papers will have 5 (five) questions in all having equal marks.

(i) Question number 1 will be compulsory and will have 20 very short answer questions of 1 mark each.

(ii) Question numbers 2 and 3 will consist of only short answer type questions with 4 sub divisions of 5 marks each. There will be internal choice in these questions.

(iii) Question numbers 4 and 5 will be long answer type questions with internal choice.

No supplementary answer book will be given to any candidate. Hence the candidates should write the answer precisely in the main answer book only.

All the parts of one question should be answered at one place in the answer book. One complete question should not be answered at different places in the answer book.

[20×1=20]

1. Short answer type questions -

   (a) What is Frequency Distribution?

   (b) Define Null Hypothesis?

   (c) Who proposed the Theory of Testing Hypothesis?

   (d) What is Founder Effect?

   (e) What is Macro-evolution?

   (f) What are Frame-shift Mutations?

   (g) Define Ogive.

   (h) What do you mean by Standard Deviation?

   (i) ANOVA stands for what?

   (j) Define Gene-flow.

   (k) What is Phenotypic Plasticity?

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[P.T.O]

(l) Name the types of measure of central tendency.

(m) Define Z-test.

(n) Transgressive Variations.

(o) Define Neo-Darwinism.

(p) Write empirical formula of Mode.

(q) Define Degree of Freedom.

(r) What is Atavism?

(s) Define Restriction Enzyme Sites.

(t) What is Molecular Clock?

2. Write short notes on the following - [4×5=20]

(a) Scope and Applications of Biostatistics

(b) Types of Bar Diagram.

(c) Arithmetic Mean, its merits and demerits

(d) Student-t-test

OR

(a) Histogram and its types

(b) Median, its merits and demerits

(c) Linear Regression Analysis

(d) Karl Pearson's Coefficient of Correlation

3. Write short notes on the following - [4×5=20]

(a) Neutral Theory of Evolution.

(b) Phylogenetic Tree.

(c) Ecological Significance of Molecular Variations.

(d) Gene Evolution.

OR

(a) Genotype-environment Interaction.

(b) Factors affecting Human Disease Frequency.

(c) Biological Concepts of Species.

(d) Heterosis.

4. RBCs count lac/mm^3 and Hb% g/100ml of 500 persons of test locality was recorded as follow. Is there any significant relation between RBCs count and Hb%? Find it by Chi-Square Method. [20]

RBCs count	Hb%		Total
	Above normal	Below normal	
Above normal	85	75	160
Below normal	165	175	340
Total	250	250	500

AT 5% significance level of table value of chi-square at 1 degree of freedom = 3.84.

OR

Write a detailed note on Probability Distribution.

5. What is Speciation? Describe the different modes of speciation. [20]

OR

Describe in detail about the Nucleic Acid Phylogeny.