Roll No. : .....

Total No. of Questions : **11**] [Total No. of Printed Pages : **4**

BPP–1077

M.Sc. (Previous) Examination, 2022

ZOOLOGY

Paper - IV

(Evolution, Statistical Methods and Computer Application in Biology)

*Time : **3** Hours*] [*Maximum Marks : **75***

Section–A **(Marks : 2 × 10 = 20)**

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section–B **(Marks : 5 × 5 = 25)**

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section–C **(Marks : 10 × 3 = 30)**

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section–A

1. (i) Explain Sewall-Wright Effect.

(ii) Define Homology.

(iii) Define Phylogenetic Species concept.

(iv) How $p^2 + 2pq + q^2 = 1$ related to the population ?

(v) Define Frequency Polygon.

(vi) What is Polymorphism ?

(vii) Define Migration.

(viii) Explain Mendelian Population.

(ix) Define Balancing Selection.

(x) What is Allopatric Speciation ?

Section–B

2. Describe the Evolutionary theories befor Darwin period.

Or

Explain the effects of genetic drift on a Population.

3. Describe the chromosomal mutation.

Or

Write down the species concept to describe Mendelian species.

4. Explain the directional selection.

Or

Describe the concept of NeoLamarkism.

5. Explain the probability.

Or

Describe standard deviation and standard error.

6. Calculate the mode for these variables :

Butter Fat in Cows	No. of Cows
3.5–4.0	4
4.0–4.5	60
4.5–5.0	50
5.0–5.5	36
5.5–6.0	30
6.0–6.5	10
6.5–7.0	5
7.0–7.5	2
7.5–8.0	2
8.0–8.5	1

Or

Describe the graphical representation of Statistical Methods.

Section–C

7. Explain the following :

   (a) Random mating

   (b) Mutagens

   (c) Gene frequency

   (d) Genetic equilibrium

   (e) Correlation

8. Give a detailed account of theories of organic evolution with the specific evidences.

9. Explain the variations and molecular evolution with the aspects and examples.

10. What is Selection ? Explain it with reference to modem concept of natural selection.

11. Define bio-statistic with the reference of purpose, history, application and descriptive statistical methods.