WEST BENGAL STATE UNIVERSITY

B.Sc. Honours Part-I Examination, 2021

ZOOLOGY

PAPER: ZOOA-II

Time Allotted: 2 Hours | Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.

1. Answer any ***eight*** questions from the following: 1×8 = 8
   (a) Define Darwinian Fitness.
   (b) Name two of the heterochronic processes.
   (c) Name two extinct hominids.
   (d) What is meant by 0.1 darwin in macroevolution?
   (e) What is a cannon fone?
   (f) What is 'founder effect'?
   (g) Which major theory of inheritance was rejected from Mendel's experiments?
   (h) Give an example of paedomorphosis.
   (i) Who proposed the concept of Punctuationist Equilibrium?
   (j) If the frequency of recessive homozygous in a randomly mated dialectic population is 0.9, what is the frequency of the recessive allele approximately?
   (k) Name two methods of prezygotic isolation.
   (l) What was Lamarck's idea of inheritance?

2. Answer any ***four*** questions from the following: 3×4 = 12
   (a) Define allometry. Explain it with an example. 1+2
   (b) Explain briefly the H-W equilibrium.
   (c) Mention the salient features of the *Australopithecus*.
   (d) Explain genetic drift with a suitable example.
   (e) How speciation might take place by allopatric process?
   (f) Briefly outline the concept of 'punctuated equilibrium.

3. Answer any ***three*** questions from the following: 5×3 = 15
   (a) Outline the major trends in the evolution of equine teeth.
   (b) Explain the actions of Natural Selection with the example of industrial melanism.
   (c) For the MN blood group, a sample from a population show the frequencies of 'M' group individuals = 36%, 'N' blood group individuals = 16%. Find out whether the population is at H-W equilibrium or not.
   (d) Write short notes on – (i) Ring Species (ii) Neoteny $2\frac{1}{2}+2\frac{1}{2}$

(e) What is 'Adaptationist Programme'? Explain briefly. 2+3

4. Answer any ***four*** questions from the following: 1×4 = 4

(a) What is the probability of getting 3 heads successively in the tossing of a fair coin?

(b) What do you mean by $p < 0.01$ in case of a statistical test?

(c) What is a null matrix?

(d) What do you mean by discrete and continuous variables?

(e) What is the range of 5, 13, 11, 7, 9, 25, 6, 3?

(f) $\log_{10} 10^4 = ?$

(g) What is the probability of getting '6' in both dice, if two fair dices are thrown blindly?

5. Answer any ***two*** questions from the following: 3×2 = 6

(a) How many ways you can keep 4 rats in 5 different cages.

(b) Compute the mean, median and mode for the data set of 21, 23, 29, 21, 26, 21, 25, 27, 20, 22, 21, 23.

(c) Draw a group showing hypothetical relationships between height and age and point out the dependent variable, independent variable.

(d) Solve for x in $\log_5 x = 2$.

6. Answer any ***one*** question from the following: 5×1 = 5

(a) What is the probability of having two daughters and a son by a couple who plan to get three children?

(b) Determine whether the following data obtained in an experiment is consistent with Mendel's results or not

Seed type	Yellow smooth	Yellow wrinkled	Green smooth	Green wrinkled
Number obtained	152	39	53	6

Note that $\chi_{0.95} = 1.746$ for df = 3

(c) Draw a pie diagram for the following frequency distribution:

A	B	C	D	Total
258	172	387	43	860

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

——x——