



বিদ্যাসাগর বিশ্ববিদ্যালয়

**VIDYASAGAR UNIVERSITY**

**M.Sc. Examinations 2020**

**Semester IV**

**Subject: ZOOLOGY**

**Paper: ZOO- 401**

(Theory)

**Full Marks: 40**

**Time: 2 hrs.**

*Candidates are required to give their answers in their own words as far as practicable.*

**Group-A (Environmental pollution & Management)**

**1. Answer one question of the following:**

- a) Differentiate environment from ecosystem. Enlist different burning environmental issues of the world. Briefly discuss the human-environmental interactions from the historical perspectives. Add a note on the roles of different International and national regulatory bodies for the cause of environment.
- b) Define environmental pollution. How does it differ from environmental degradation? Enlist major types of water pollution. Schematically highlight different environmental consequences of eutrophication. Explain the multifarious environmental impacts of chemical fertilizers. Add a note on biomagnifications.
- c) With a labeled diagram point out different vertical profiles of the atmosphere mentioning their salient environmental characteristics. Explain the roles of meteorological parameters in determining the Acid-Rain. What are environment consequences of Acid-Rain?
- d) What are the different components of environmental management? Briefly discuss on the merits and demerits of biomonitoring. Schematically represent the significance of biodiversity. Write about the concept of SLOSS. Briefly discuss the significance of traditional knowledge in biodiversity conservation.



**Group-B (Biostatistics)**

**1. Answer one question of the following:**

**a.** Work out the linear regression equation of wing length (Y in mm) on body weight (X in mg) of the mosquito *Anopheles* collected from a rice field area of Midnapore.

Sl. No.	1	2	3	4	5	6	7	8	9	10
Wing (Y) Length	2.5	3.5	3.1	2.9	2.7	3.2	2.6	4.1	3.4	3
Body (X) weight	4.6	5.6	5.9	5.7	5.2	5.8	5.0	6.4	5.1	4.4

From the computed equation, find out wing length (in mm) of a mosquito of 5.5mg body weight

**b.** Explain Normal Distribution with a normal curve showing area of the distribution within it. Write down the properties of Normal Distribution.

**c.** A study was conducted in Midnapore to determine if the physical fitness prior to surgery of persons under going ankle surgery has any effect on time required in post-surgery physical therapy until successful rehabilitation. The survey record of 24 male patents and number of days required for physical therapy and prior to fitness condition were noted and shown in the following table

Prior physical condition	Duration of Physical Therapy								
	Poor	39	43	41	30	45	26	31	
Average	28	29	35	31	34	2	38	30	34
Good	23	20	22	21	33	25			

Test the claim that prior physical condition has an influence on the duration of Physical Therapy. Tabulated  $F_{0.05(2,21)} = 3.47$

**d.** Work out correlation coefficient between gill weight and body weight of smaple 10 carp fishes and test its signifance at 95% confidence limit. Critical  $t_{0.05(8)} = 2.3$ ,  $t_{0.05(9)} = 2.26$

Fish	1	2	3	4	5	6	7	8	9	10
Gill weight (gm)	0.15	0.11	0.19	0.30	0.13	0.20	0.25	0.28	0.16	0.22
Body weight (gm)	11.2	8.10	13.2	14.5	8.45	12.20	14.35	14	11.26	9.6