



PG (CBCS)
M.SC. Semester- III Examination, 2023
ZOOLOGY

PAPER: ZOO 395
(ENTOMOLOGY, ECOTOXICOLOGY, MOLECULAR EVOLUTION AND
MICROBIOLOGY)

Full Marks: 50

Time: 6 Hours

The figures in the right-hand margin indicate full marks.

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

1. This data is from E. B. Ford (1971) on the scarlet tiger moth, for which the phenotypes of a sample of the population were recorded. Genotype-phenotype distinction is assumed to be negligibly small. By performing a X^2 test, determine whether the population obeys the Hardy-Weinberg principle of equilibrium. 10

Phenotype	White-spotted (AA)	Intermediate (Aa)	Little spotting (aa)	Total
Number	1460	130	7	1597

2. Calculate the LC_{50} value of 24hrs and 48hrs based on the following data and graphically represent the values and comment on it. 10

Test specimen: *Puntius sarana*

Toxicant: Cadmium chloride

Concentration of the toxicant (mg/l)	Number of specimen	Number of specimen dead after 24 hrs.	Number of specimen dead after 48 hrs.
1	20	0	4
2	20	2	6
3	20	4	8
4	20	6	10
5	20	7	14
6	20	10	16
7	20	11	18
8	20	13	19
9	20	16	20
10	20	17	20

3. Prepare a stained slide following Gram staining procedure using given sample and identify the Gram +ve and Gram -ve bacteria. Draw, label and comment on your observation. (15)

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| 4. Identify the following specimens provided and comment on it. | 5 |
| 5. Laboratory Note Book. | 5 |
| 6. Viva voce | 5 |

