

**2021**  
**M. Sc 3<sup>rd</sup> Semester Examination**  
**ZOOLOGY**  
Paper-ZOO 395 Practical

*Full marks- 50*

*Time-2 hrs*

*The figures in the margin indicate full marks.*  
*Candidates are required to give their answer in their own words as far as practicable. Illustrate the answer wherever necessary.*  
*Use separate Heading Group-A & Group-B*

**Answer the following questions:**

1. Identification with ecological & economical comments.

$2\frac{1}{2} \times 4 = 10$

a.



b.



c.



d.



2. Estimate the  $LC_{50}$  value by dose response curve of a toxicant from the data provided.

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Aquarium no.	No. of test organisms	Conc. of the toxicant (mg/L)	Mortality			
			48 hrs.		96 hrs.	
			No. of fish died	% of mortality	No. of fish died	% of mortality
1.	10	Control (no toxicant)	0	0	0	0
2.	10	1.0	0	0	1	10
3.	10	1.5	3	30	5	50
4.	10	3.0	5	50	7	70
5.	10	5.0	7	70	9	90
6.	10	10.0	10	100	10	100

3. Construct a molecular phylogenetic tree using the table provided below. Number of dissimilar amino acids in the  $\alpha$ -globin of the following vertebrates among 141 amino acids. Estimate the extent to which the amino acid sequence of these six organisms differ.

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	Mouse	Chicken	Newt	Carp	Shark
Human	16	35	62	68	79
Mouse		39	63	68	79
Chicken			63	72	83
Newt				74	84
carp					85

4. Write down the procedure of bacterial stain preparation from a culture media (curd).  
Write down the identifying character of the desired bacteria.
5. Write down the principle & procedure of coliform bacteria enumeration from drinking water.

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