Subject : Zoology   Time: 01½ hours

Course Unit : ZOO 2212 : Animal Ecology

Answer **any three** questions only.

Illegible handwriting would be penalized.

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1. **Answer all parts.**

(i). What is meant by a density dependent factor of a population?

(ii). The life cycle of an insect species, comprised of egg, larva, pupa and adult stages, was investigated over 15 generations. The log values of the egg, larval, pupal and adult densities with respect to 15 generations are mentioned in the Table 1.

Table 1 - Log egg, larval, pupal and adult density with respect to 15 generations

Generation	Log eggs	Log larva	Log pupa	Log adults
1	2.000	1.991	1.954	1.875
2	2.079	2.021	1.886	1.857
3	1.991	1.954	1.903	1.839
4	1.996	1.954	1.875	1.833
5	2.090	2.000	1.903	1.903
6	2.114	2.079	1.954	1.903
7	2.049	2.041	1.954	1.881
8	2.037	1.982	1.919	1.875
9	2.155	2.137	2.057	1.973
10	2.146	2.140	1.991	1.924
11	2.143	2.090	2.004	1.949
12	2.111	2.049	1.954	1.903
13	2.061	2.037	1.954	1.875
14	2.152	2.137	2.061	1.968
15	2.033	1.996	1.949	1.881

(a). Calculate the egg (k_1), larval (k_2) and pupal (k_3) mortalities for each generation.

(b). Find out the Key factor for this insect population.

2.	(i).	Explain the equilibrium theory of Island Biogeography.

	(ii).	Briefly discuss the factors affecting species diversity on Islands.

3.	Describe, characters used to differentiate lentic and loitic fresh water ecosystems.

4.	Write short notes on **any three** of the following.

	(i).	Types of ecological succession

	(ii).	Ecological pyramids

	(iii).	Major processes in the Nitrogen cycle

	(iv).	Classification of estuaries based on salinity

	Marks for continuous assessments	*(20 marks)*

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