

**UNIVERSITY OF RUHUNA**

**Bachelor of Science in Fisheries and Marine Sciences Degree, 2016 July/August**

**LIM2112**

**Applications of Basic Ecological Principles to Aquatic Ecosystems**

**Answer all questions**

**Time: 1 ½ hrs**

1. Consumption rate of organic matter by Chironomid larva was tested for a one month period by a laboratory experiment varying individuals from 5 to 30. Initial organic matter content of each setup was 10mg/g. The abundance of larvae and organic matter content after one month are given in the following table. Analysing the given results explain the utilization of organic matter by Chironomid larvae.

Abundance of Chironomid larvae (number of individuals/m <sup>2</sup> )	Abundance of Chironomid larvae after one month (number of individuals/ m <sup>2</sup> )	Organic matter content in the substrate (mg/g)
05	05	5
10	10	4
15	14	3
20	18	3
25	22	4
30	26	3

2. Population change of a phytoplankton species was studied under laboratory conditions using the initial cell density as 100 cells/m<sup>3</sup> over one month period. The results obtained from respective parameters are given in the following table. Explain the change of phytoplankton population within the considered time period.

Initial primary production (gC/m <sup>2</sup> /hr)	Primary production after one month (gC/m <sup>2</sup> /hr)	Number of live cells settled on the bottom after one month	Number of dead cells after one month
2.5	1.48	10	24

3. Describe the effect of water movement on structuring the habitat of aquatic macro invertebrates in a lotic ecosystem.
4. Describe the importance of secondary production in a lotic aquatic system.