RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences
Second Year - Semester II Examination – October/November 2017

BIO 2203 –ECOLOGY

Time: Two (02) hours

Answer any four (04) of the following questions.

1. a) Explain the terms food chain and food web. **(04 marks)**

   b) Describe the different types of ecological pyramids its energy transmission, within them. **(11 marks)**

   c) "Bio accumulation is a major ecological concern". Using an example, briefly explain the process of bioaccumulation. **(10 marks)**

2. a) Define the term "biogeochemical cycles". **(05 marks)**

   b) Discuss how the various types of organisms and their biochemical reactions contribute to the recycling of sulfur in nature and its consequences. **(20 marks)**

3. a) Differentiate fundamental niche from realized niche. **(04 marks)**

   b) Explain how resource partitioning leads to species coexistence. **(12 marks)**

   c) Using examples from both plants and animals, comment on the strategies adopted by species to minimize predation. **(09 marks)**

4. a) Distinguish between a life table and a reproductive table. **(03 marks)**

   b) The pure European Mouflon sheep survive in small numbers on reserves and in zoos. Sheep are supposed to have come originally from the lofty plateaus and mountains of Central Asia. A study was conducted on a population of female Mouflon sheep in the lofty plateaus are the Cohort life table for female Mouflon sheep (x = years) is given below.

x	nx	m
0	608	0
1	487	0
2	480	0
3	472	1.86
4	465	1.68
5	447	1.22
6	419	0.93
7	390	0.7
8	346	0.69
9	268	0.3
10	154	0.05
11	59	0
12	4	0
13	2	0
14	0	0

(i) Construct a life table for the Mouflon sheep and find how many more years will a female Mouflon sheep at age 3, is expected to live and her age at time of death. **(12 marks)**

(ii) Draw a survivorship curve for this cohort and comment on it. **(04 marks)**

(iii) Calculate the net reproductive rate and generation time for this population using the equations given below. **(06 marks)**

$$T = \sum_{x=0}^{n} xl_x m_x \Big/ R_0 \qquad R_0 = \sum l_x m_x$$

5. Write short notes on the following;

a) symbiotic associations exist in the nature

b) intra and interspecific competion

c) ecological succession.

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