RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES, MIHINTALE

B.Sc. (General) Degree in Applied Sciences
Second year – Semester II Examination – March/April 2015

BIO 2203 - ECOLOGY

Time : Two (02) hours

Answer four (04) Questions only.
Illustrate your answers where appropriate.

1. a) Explain the term "Pedology" and highlight its importance.

   b) Differentiate phosphorous cycle from nitrogen cycle and briefly describe how these two nutrient cycles enrich the soil.

2. a) Elucidate the terms, food chain and food web.

   b) Describe the different types of ecological pyramids with reference to their energy transmission.

   c) Bio accumulation is one of the major problems in nature. Using an appropriate example briefly explain how it occurs along a food chain.

3. Species interactions are important for the balancing of an ecosystem.

   a). Describe the different types of species interactions that exist in an ecosystem and outline the importance of studying them under ecology.

   b). 'Some species avoid competition by resource partitioning". Justify this statement.

4. A study was conducted on a population of jumping spiders in the Mihintale Sanctuary and the data collected on number of offsprings produced during their life time are given in table 1.

Table1. Cohort sample of jumping spiders in Mihintale Sanctuary

x (in months)	n_x
0 - 1	735
1-2	674
2-3	321
3-4	142
4-5	139
5-6	96
6-7	89
7-8	87
8-9	86
9-10	84
10-11	83
11-12	79
12-13	54
13-14	49
14-15	46
15-16	43
16-17	20
17-18	19
18-19	10
19-20	8
20-21	6
21-22	5
22-23	5
23-24	4
24-25	4
25-26	0

a) Create a life table for the Jumping spider using Table 1.

b) What type of survivorship curve does this population display?

c) Based on the evidence presented in the life table, do you think the population is growing, shrinking or stable? Justify your answer.

5. Using a suitable example for each explain **any two (02)** of the following:-

a) Realized and fundamental niche
b) Ecological succession
c) Keystone species in an ecosystem