00591

THE OPEN UNIVERSITY OF SRI LANKA

B. Sc. DEGREE PROGRAMME - LEVEL 4

FINAL EXAMINATION– 2013/2014

COURSE TITLE: FUNDAMENTALS OF ECOLOGY

COURSE CODE – ZLU2281/ZOU2265

DURATION – 3 HOURS

INDEX NUMBER .....

DATE: 18.11.2014 TIME: 9.30AM-12.30 PM

QUESTION PAPER CONSISTS OF TWO PARTS, PART "A" AND PART "B".

ANSWER QUESTION 1 FROM PART "A" AND ANY FOUR QUESTIONS FROM PART "B".

PLEASE NOTE THAT QUESTION 1 IS COMPULSORY AND THE ANSWERS SHOULD BE WRITTTEN IN THE SPACE PROVIDED.

PART "A"

QUESTION 1

1.1

a) Define the term population.

.....

.....

b) How do you determine the population size of a particular fish species in a stream? Explain the method briefly?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

1.2. Using a graphical representation explain the types of survivorship curves and provide examples for each.

1.3 a) what is meant by "population growth"?

.....

.....

b) State the parameters that affect the population growth in a closed population.

.....

1.4. Fill in the blanks given below with appropriate word/s.

Geometric, a single, exponential, overlapping, $R_0 N_t$, r N, R_0 r N_t, increase geometrically, increase exponentially, decrease to extinction.

a) Certain fish species produce ..... generation. In such populations generations do not overlap. This type of populations show..... population growth. If each female produces R_0 female offspring, the population size of female at generation $_{t+1}$ (N_{t+1}), N_{t+1} =..... If $R_0>1$, the population ....without limit and if $R_0<1$ the population .....

b) Illustrate the population growth of populations showing different R_0 values, R_0= 1.5, 1.2, 0.9.

c) Other than the growth shown in 1.4 above, list the types of growth curves and relevant equations.

2.1. List the three main categories of inter-specific interactions with their subdivisions.

.....

.....

.....

2.2. Draw "graphical diagrams" to represent the possible outcomes of inter specific competition between two species.

PART "B"

ANSWER ANY FOUR (04)) QUESTIONS

2. Explain the niche characteristics in detail.

3. Write an essay on "Population regulation".

4. Describe the sulphur cycle and explain briefly the major human influences on this cycle.

5. Discuss the following in detail.
   a) Humans as agents of organic evolution.
   b) Humans as dirty animals.

6. a) List the main grassland community types found in mountainous regions of Sri Lanka giving relevant climatic, edaphic and geological factors.
   b) What is meant by "Hummock and hollow cycle" of a grassland community?
   c) Briefly explain the characteristics of a grassland community of Sri Lanka which shows prominent "Hummock and hollow physiognomy".
   d) Compare the main characteristics of the above mentioned grassland type (in part"C") with that of a dry zone "*Patana*" grassland.

7. Write short notes on **any three** of the following.
   a) Biotic components.
   b) Divergent plate boundary.
   c) Allopatric speciation.
   d) Species diversity.