THE OPEN UNIVERSITY OF SRI LANKA

B. Sc. DEGREE PROGRAMME – LEVEL 04

BOU2101 – GENETICS & EVOLUTION
CAT 1 (NO BOOK TEST)

DATE: 17th September 2011 Time: 4.00 – 5.00 p.m.

REGISTRATION NUMBER: .....

Answer all questions.

This paper consists of two parts; Part A & B.

Part A - Q 1 contains 20 multiple choice questions. Tick the correct answers for these questions on the answer sheet provided below.

Part B has two questions, Q 2 & Q 3. Answers for these questions should be written on the space provided.

Answer Sheet for Part A - Q 1

	(a)	(b)	(c)	(d)
1.1				
1.2				
1.3				
1.4				
1.5				
1.6				
1.7				
1.8				
1.9				
1.10				

	(a)	(b)	(c)	(d)
1.11				
1.12				
1.13				
1.14				
1.15				
1.16				
1.17				
1.18				
1.19				
1.20				

Registration Number: .....

Part B

Q. 2.

(i). How do you define a species in biological point of view?

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(ii) Mention three limitations of the biological species concept.

1. .....

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2. .....

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3. .....

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(iii) Define the terms given below, which indicate different degrees of phenotypic variations within species.

Ecotype: .....

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Cline: .....

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Polytypic species: .....

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(iv) State three mechanisms by which fertilization between species is prevented.

1. .....
2. .....
3. .....

(v) What is speciation?

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(vi) Why does geographical isolation lead to speciation?

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(vii) How can the fact that fishes and dolphins have similar organs and similar general shape be explained?

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Q. 3

(i) In 1953, Stanley Miller and Harold C. Urey re-created conditions existed in the early earth in a closed tube with two chambers to find out whether organic molecules could be produced abiogenically. Mention the primitive earth conditions that they created inside the apparatus.

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(ii) Mention 5 important complex molecules that these researchers and their successors were able to obtain when they performed the experiment mentioned in Q3 (i).

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(iii) What are the most suitable places where polymerization of organic monomers would have taken place to produce precursors of biological molecules?

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(iv) In order to originate life from nonlife, a cell has to be formed and metabolism and replication have to be established in it. Proteinoid microspheres, first investigated by the scientist S.W. Fox, are the most interesting model so far been proposed though the gap between them and simplest known prokaryots is still enormous. Mention 5 cell like properties of microspheres.

1. .....
2. .....
3. .....
4. .....
5. .....

(v) The microspheres would have incorporated RNA and DNA formed spontaneously on clay into them and developed into the first primitive cell. Give two characteristics of the first cells.

1. .....
2. .....

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