THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. / B. Ed. DEGREE PROGRAMME - 2011/2012
LEVEL 04 - BOU 2102 / BOE 4102
SYSTEMATICS OF HIGHER PLANTS AND ANIMALS
ASSESSMENT TEST (NO BOOK TEST)

DURATION – ONE (01) HOUR

Reg. No. .....

Date: 26th October 2011 **Time: 11.00 am – 12.00 noon**

Answer All Questions. Answers should be written in the space provided.

PART A (30 minutes)

01. There are heritable and non heritable morphological variations in populations of organisms.

a. What is their importance to organisms?

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b. In which variations taxonomists are interested? Give the reason for your answer.

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c. What are the **three (03)** major factors responsible for heritable variations?

i.....

ii.....

iii.....

d. State **one (01)** major factor responsible for non heritable variations?

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e. Mention how you would determine whether a morphological variation is heritable or non heritable?

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f. 'Morphological variability is peculiar in plants than in animals'. Why?

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02. A student wants to find out the morphological variation within a plant species using herbarium specimens available. He has decided to carry out DNA studies for this purpose.

a. For which reasons do you think that the student relies on DNA studies in this work?

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b. What type/s of DNA he can use for this purpose?

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c. What are the **three (03)** major steps involved in his study?

i.....

ii.....

iii.....

d. What are the possible constraints the student might face?

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03. a. Name **three (03)** macro-molecules that are used in solving taxonomic problems in plants.

i.....

ii.....

iii.....

b. Name a method used to compare plant taxa based on each of the following properties of plant proteins.

i. Enzyme activity - .....

ii. Antigenic property - .....

c. Give **three (03)** reasons as to why flavonoids are widely used in plant taxonomy.

i.....

ii.....

iii.....

d. Given below are some examples for alkaloids found in plants. Name one plant or a family in which you find each of them.

i. Nicotine .....

ii. Quinine .....

iii. Ephedrine .....

iv. Morphine .....

04. a. What is meant by phylogeny?

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b. Outline **one (01)** doctrine on which angiosperm phylogeny is based.

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c. Differentiate between the following.

i. Monophyly and polyphyly in phylogeny

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ii. Plesiomorphy and apomorphy

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iii. Cladistics and phenatics

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05. a. Suppose you have collected data on a large number of characters for a taxonomic study. List the steps you would follow when handling these characters.

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b. Give **three (03)** pollen characters used in plant identification.

i.....

ii.....

iii.....

06. State **three (03)** unethical behaviours a taxonomist should prevent from, when collecting and processing data of a taxonomic research.

i.....

ii.....

iii.....