

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. DEGREE PROGRAMME 2015/2016
LEVEL 04

BOU 2102 / BOE 4103 - SYSTEMATICS OF HIGHER PLANTS AND ANIMALS

NO BOOK TEST

DURATION – ONE (01) HOUR

Reg. No.

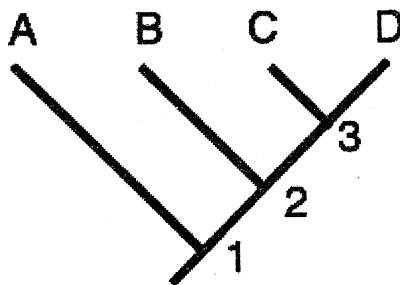
Date: 8th May 2016

Time: 2.30 p. m. – 3.30 p. m.

Answer all questions using the space provided in the question paper.
This paper consists of six (06) questions and six (06) pages.

01.

I. Answer the following questions based on the given diagrams

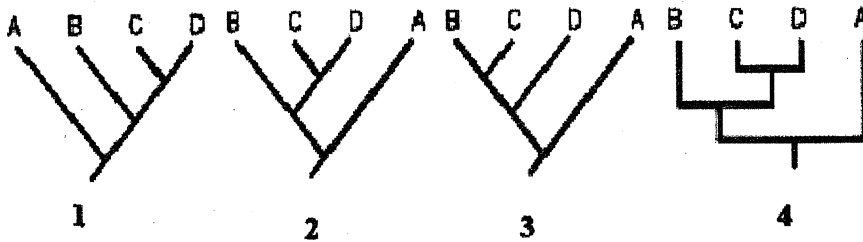


1, 2, 3 - Nodes
A, B, C, D - Terminal taxa

- i) In the above cladogram, which node occurred earliest in time?
Node number
- ii) Which node represents the most recent common ancestor of terminal taxa B and C?
Node number
- iii) Which node represents the most recent common ancestor of terminal taxa A and B?
Answer
- iv) Out of the all terminal taxa, which is the most closely related to terminal taxon B?
Terminal taxon
- v) Reason for the answer

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II. Of the cladograms shown below, which one shows a different evolutionary history from the others?



Answer

02. State two (02) advantages and two disadvantages of using secondary metabolites in plants as source of taxonomic evidences.

Advantages

- i.....
-
-
- ii.....
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-

Disadvantages

- i.....
-
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- ii.....
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03. The first stage of speciation is reproductive isolation. List the major ways in which reproductive isolation occurs (prezygotic and postzygotic).

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04. Underline the correct answer of the following questions

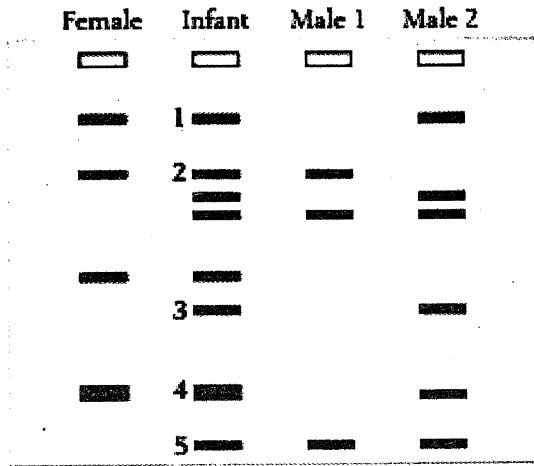
- A) Biological species concept was put forwarded by
 - a. Simpson.
 - b. Mayr.
 - c. Paterson.
 - d. Wiley.

- B) Which one is comparatively reliable than others as taxonomic source of evidences?
 - a. Morphological evidences
 - b. Anatomical evidences
 - c. Palynological evidences
 - d. Karyological evidences

- C) In an SDS-PAGE technique, which of the following is correct?
 - a. Proteins are denatured by the SDS
 - b. Proteins have the same charge-to mass ratio
 - c. Smaller proteins migrate more rapidly through the gel
 - d. All of the above

- D) In gelelectrophoresis technique, moving negatively charged molecules through matrix of agarose, is achieved by applying
 - a. electric current.
 - b. electric field.
 - c. magnetic field.
 - d. All of the above.

B) A female chimpanzee recently gave birth to an infant while in captivity. Because the paternity of the infant is unclear, scientists tested the DNA from two male chimpanzees, along with the female and infant. The resulting electrophoresis gel is shown.



Based on the gel electrophoresis result, what can be concluded?

- I. Male 1 could possibly be the parent.
 - II. Male 1 can be ruled out as the parent.
 - III. Male 2 could possibly be the parent.
 - IV. Male 2 can be ruled out as the parent.
- A. II only
 - B. I and III
 - C. I and IV
 - D. II and III
 - E. II and IV

06

I. List the logical steps involved in numerical taxonomy.

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II. State the undesirable features that an author should avoid in writing taxonomic papers.

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