00136

The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc/ B.Ed Degree Programme

Department	: Zoology
Name of the Examination	: Final Examination
Academic Year	: 2024/2025
Course Code and Title	: ZYU5309 - Paleobiology
Level	: 5
Date	: 22.05.2025
Time	: 9.30 a.m. – 11.30 a.m.
Duration	: Two hours

General Instructions to Candidates

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **three (03) pages** and **Six (06) questions**.
3. Answer any **four (04) questions**.
4. The answer for each question should commence from a new page.
5. Use blue or black ink to write your answers.
6. Draw fully labelled diagrams where necessary.
7. Write the numbers of the questions you answered in the front page of the answer script.
8. Clearly write your index number in the answer script.
9. Do not bring in or have in possession unauthorized materials, including mobile phones and other electronic devices, or violate other examination rules.
10. Handover your answer script at the end of the examination.

Answer any four (04) of the following questions.

1. Answer the below questions on "Domestication"

   i. Define the term "Domestication" **(10 marks)**

   ii. Briefly explain the major animal domestications that took place 10,000 years ago, giving at least 4 animals as examples. **(40 marks)**

   iii. Discuss the evolutionary and ecological consequences of domestication in terms of animal and plant characters? **(60 marks)**

2. Compare and contrast between the below pairs at least by giving 5 characters for each (Tabulation is preferable). **(100 marks)**

   i. Acheuleun tools vs Oldowan tools

   ii. *Australopithecus afarensis* vs *A. africanus*

   iii. Denisova Hominins vs *Homo sapiens*

   iv. Relative dating vs Absolute dating

   v. Oriental Zoogeographic region vs Australian zoogeographic region

3. You have discovered faunal bone fragments at an excavation site and plan to recover, study, and eventually display them in a museum exhibit. Describe the systematic process involved from excavation to exhibition, including collection, transportation, cleaning, dating, identification, and preparation for museum display. **(100 marks)**

4. You are examining a fossil assemblage from the ancient cave site "Batadomba Lena." Within this collection, you discover bone fragments of faunal species along with artifacts resembling stone tools. Among the findings are:

   - *Homo sapiens* - 2 complete skulls, 2 right tibiae, 10 left ulnae, 3 right ulnae
   - 11 long, triangular, trapezoid, or lunate stone tools made of flint or chert, likely used as hunting weapons (e.g., spears and arrows)
   - 2 partial *Sus scrofa* (wild pig) humeri showing bone modifications such as weathering, gnaw marks, and cut marks
   - 3 pebbles made up of ostrich eggshells.

Based on this assemblage, answer the following questions:

i. Define MNI, MNE and NISP **(15 marks)**

ii. Using the data provided, calculate the MNI, MNE, and NISP. Justify your selection of bones and clearly show the steps involved in your calculations **(30 marks)**

iii. In a paleontological context, if broken bone fragments are recovered, explain the procedures you would follow to prepare these fragments for measurement before calculating the MNI. **(20 marks)**

iv. Based on the evidence discovered, discuss what this assemblage reveals about the paleoenvironment of the hominins associated with the site. **(20 marks)**

v. A detailed survey suggests that the fossil remains belong to a "child" and several adults. Briefly explain the methods and criteria paleontologists might have used to reach this conclusion. **(15 marks)**

5. Answer the below questions on the palcobiology of Sri Lanka.

i. Briefly describe the geological history of Sri Lanka with reference to plate tectonics. In your answer, explain Sri Lanka's position within the supercontinent Gondwana during the Permian period and outline the tectonic processes that led to its drift to the present geographic location. **(30 marks)**

ii. Identify the main fossiliferous sedimentary formations found in Sri Lanka. For each location, describe the types of fossils discovered and their geological significance, using specific examples. **(70 marks)**

6. Write short notes on any two of the followings **(100 marks)**

i. Theories of the Origin of Life
ii. Palynology
iii. Bronze age and Iron age

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