BANC 104: Human Origin and Evolution
TUTOR MARKED ASSIGNMENT (TMA)

Course Code: BANC 104

Assignment Code: BANC 104/ASST/TMA/July 2026 and January 2027

Total Marks: 100

There are three Sections in the Assignment. Answer questions from all three Sections.

Assignment - I

Answer any two of the following questions in about 500 words each. 20 x 2 = 40

a. Discuss the scope of palaeoanthropology.
b. Explain the dating methods used in palaeoanthropology.
c. Describe Miocene hominoids and their evolutionary significance.

Assignment - II

Answer the following questions in about 250 words each. 10 x 2 = 20

a. Describe Homo habilis.
b. Discuss Homo erectus.

Answer any two of the following questions in about 150 words each. 5 x 2 = 10

i. Hominisation process
ii. Australopithecus afarensis
iii. Archaic Homo sapiens
iv. Origin of modern humans

Assignment - III

Answer the following questions in about 250 words each. 10 x 3 = 30

a. Define craniometry and describe any three craniometric landmarks.
b. What is cranial index? Explain its calculation and significance.
c. Describe the osteometric measurement of any two long bones.

a. Discuss the scope of palaeoanthropology.

Answer

Palaeoanthropology is the branch of anthropology that investigates the origin, development and diversity of humans and their extinct relatives through evidence from the past. It combines the study of fossils with geology, archaeology, comparative anatomy and evolutionary biology. The subject asks when the first hominins appeared, how their bodies and behaviour changed, and why different human groups emerged, dispersed and sometimes disappeared. Its scope is wider than arranging fossils in a sequence: it aims to reconstruct the lives and environments of populations that left only fragmentary traces.

Fossil evidence and evolutionary relationships

The most direct evidence comes from fossil skulls, jaws, teeth and postcranial bones. Their size, shape and distinctive features help researchers recognise species and compare them with living humans and other primates. Teeth reveal aspects of diet and growth; the pelvis, spine, lower limbs and feet offer clues to locomotion; and the cranium indicates changes in brain size and facial form. For instance, the pelvis and femur of Australopithecus afarensis show habitual bipedalism, although some climbing adaptations remained. Such combinations make it possible to study evolutionary change without assuming that all human traits appeared together.

Researchers use comparative morphology and cladistic analysis to propose relationships among fossil forms. They distinguish inherited features from similarities produced by adaptation to comparable environments. Fossils are not simply placed on one straight ladder from 'ape' to modern human. Several hominin species lived at the same time, and the evidence often supports branching lineages rather than a single succession. The exact placement of some fossils therefore remains open to revision when new material is discovered.

Establishing age and geological context

Palaeoanthropology also determines when fossils lived and how their remains came to be preserved. Stratigraphy establishes the relative order of deposits, while radiometric techniques, such as potassium-argon and argon-argon dating of associated volcanic layers, help provide numerical ages. Palaeomagnetism and comparison with other fossil animals may add independent checks. A fossil recovered from a properly documented layer is generally more informative than an isolated bone without context. Sediment study and taphonomy explain whether remains were buried where an organism died, transported by water, disturbed by carnivores or altered by weathering.