



WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 6th Semester Examination, 2023

ZOOACOR14T-ZOOLOGY (CC14)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

1. Answer any **eight** questions from the following: 2×8 = 16
- Differentiate between genetic drift and natural selection.
 - Define species.
 - What is gene flow?
 - What is transitional fossil?
 - Who were Denisovans?
 - What is RNA world?
 - Give an example of a living fossil.
 - Name any two proponents of the Modern Synthesis.
 - What is the neutral theory of molecular evolution?
 - What is adaptive radiation?
 - Differentiate between gene frequency and genotype frequency.
 - What is peripatric speciation?
 - What is Muller's ratchet?
2. Answer any **three** questions from the following: 3×3 = 9
- In which age did the genus Homo first appear? What is "out of Africa" hypothesis? 1+2
 - Write a short note on the dating of fossils.
 - Comment on the origin of photosynthesis.
 - How does directional selection work? Explain in your own words.
 - What is the significance of genetic drift in a small population?
 - Mention the periods during which the following events occurred:
 - Trilobites were dominant;
 - Fishes were dominant,
 - Diversification of mammals occurred.

3. Answer any *three* questions from the following:

5×3 = 15

(a) What are the factors that disrupt H-W equilibrium?

2+3

If in a population, 80% individuals can taste a certain chemical and the rest cannot, and the ability to taste is due to the dominant allele A, then what is the frequency of homozygous 'non-taster' (aa) in the population?

(b) Write short notes on sympatric and allopatric speciation.

(c) Write short notes on:

2 $\frac{1}{2}$ + 2 $\frac{1}{2}$

(i) Molecular clock

(ii) Natural selection

(d) Draw and describe Urey and Miller's experiment. Comment on the conclusions drawn from it.

3+2

(e) Compare the significant evolutionary features of two extinct hominids.

(f) Compare the basic features of Darwinism with Lamarckism.