



**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)**

M.Sc. (Second Semester - Regular) Examinations, May – 2026

24MLSPC12004 – (Biodiversity and Evolution)

(Life Science)

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- | | CO # | Blooms
Level |
|------------------------------------|------|-----------------|
| a. Define biodiversity. | CO1 | K1 |
| b. What is the Biodiversity Act? | CO2 | K2 |
| c. What is ecological restoration? | CO3 | K2 |
| d. Define molecular clock. | CO4 | K2 |
| e. Define biogeography. | CO5 | K1 |

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

- | | Marks | CO # | Blooms
Level |
|--|-------|------|-----------------|
| 2. a. A pond contains 12 fishes of species A, 18 of species B, and 10 of species C. Calculate Simpson's Index. | 5 | CO1 | K4 |
| b. Explain methods of dating fossils. | 5 | CO5 | K3 |
| (OR) | | | |
| c. Write a note on molecular evolution and molecular clocks. | 5 | CO4 | K3 |
| d. Explain conservation genetics and its role in managing threatened species. | 5 | CO3 | K3 |
| 3.a. Discuss the Chipko Movement as a conservation effort. | 5 | CO2 | K3 |
| b. Explain methods of biodiversity assessment. | 5 | CO1 | K2 |
| (OR) | | | |
| c. Discuss the need for biodiversity conservation. | 5 | CO2 | K3 |
| d. Habitat A has 40 species, Habitat B has 50 species, and 25 species are common to both. Calculate Sørensen Similarity Index. | 5 | CO1 | K4 |
| 4.a. If $p = 0.7$ and $q = 0.3$, calculate genotype frequencies: | | | |
| • Homozygous dominant | 6 | CO2 | K4 |
| • Heterozygous | | | |
| • Homozygous recessive | | | |
| b. Elucidate about IUCN. | 4 | CO3 | K2 |
| (OR) | | | |
| c. Discuss adaptive radiation in Darwin's finches. | 5 | CO5 | K3 |
| d. Explain habitat loss as a major cause of biodiversity depletion. | 5 | CO1 | K3 |
| 5.a. Discuss management and conservation practices in protected areas. | 5 | CO3 | K3 |
| b. Explain the origin of life according to Oparin and Haldane theory. | 5 | CO4 | K4 |
| (OR) | | | |
| c. Explain genetic drift and the founder effect. | 5 | CO4 | K2 |
| d. Write a note on national parks and wildlife sanctuaries. | 5 | CO2 | K2 |
| 6. Explain how anthropogenic activities affect biodiversity at genetic, species, and ecosystem levels. | 10 | CO1 | K5 |
| (OR) | | | |
| c. Critically analyze the role of biotechnology in biodiversity conservation. | 5 | CO2 | K3 |
| d. Explain the evolutionary significance of neoteny and paedogenesis. | 5 | CO5 | K4 |