

**BZYCT-137**

**ASSIGNMENT BOOKLET**

**Bachelor's Degree Programme  
(BSCG)  
GENETICS AND EVOLUTIONARY BIOLOGY**

**Valid from 1<sup>st</sup> January, 2024 to 31<sup>st</sup> December, 2024**



**School of Sciences  
Indira Gandhi National Open University  
Maidan Garhi  
New Delhi-110068  
(2024)**

Dear Student,

Please read the section on assignments in the Programme Guide for Core Courses that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The assignment is in this booklet, and it consists of two parts, Part A and B. The total marks of all the parts are 100, of which 35% are needed to pass it.

### Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

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**ROLL NO.:** .....

**NAME:** .....

**ADDRESS:** .....

.....

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**COURSE CODE:** .....

**COURSE TITLE:** .....

**ASSIGNMENT NO.:** .....

**STUDY CENTRE:** ..... **DATE:** .....

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**PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.**

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) Complete each of Part A and Part B of this assignment separately, and **submit them together.**
- 6) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **Answer sheets received after the due date shall not be accepted.**

**We strongly suggest that you retain a copy of your answer sheets.**

- 7) This assignment is **valid from 1<sup>st</sup> January, 2024 to 31<sup>st</sup> December, 2024.** If you have failed in this assignment or fail to submit it by December, 2024, then you need to get the assignment for the year 2025, and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

**ASSIGNMENT**  
**GENETICS AND EVOLUTIONARY BIOLOGY**

**Course Code: BZYCT-137**  
**Assignment Code: BZYCT-137/TMA/2024**

**Maximum Marks: 100**

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**Note: Attempt all questions. The marks for each question are indicated against it.**

1. a) Explain dihybrid cross and Mendel's Law of independent assortment. (6)
- b) Explain the types of epistasis. (4)
2. Describe the molecular mechanism of crossing over. (10)
3. a) Discuss the two structural abnormalities-inversion and translocation. (7)
- b) What is Down Syndrome? (3)
4. Discuss the types of polyploids and their applications. (10)
5. Describe the chromosomal sex determination mechanisms. (10)
6. Describe the five types of DNA repair systems. (10)
7. Discuss the origin of the Universe and Big Bang Theory. (10)
8. Define the following: (10×2=20)
  - a) Founder effect
  - b) Allopatric speciation
  - c) Natural selection
  - d) Von Baer's principle
  - e) Analogous organs
  - f) Tautomerization
  - g) Expressivity
  - h) DNA denaturation
  - i) Petite
  - j) Map unit
9. Explain in detail the technique used for determining the age of rocks. (10)