



**Department of Genetic Engineering and Biotechnology**  
**Faculty of Health and Life Sciences**  
**B. Sc. (Hons.) in Genetic Engineering and Biotechnology**  
**Final Examination Spring 2026**

**Course Code: 0231-111**  
**Level and Term: L-1; T-1**  
**Time: 02 Hours**

**Section: 261A**

**Course Title: Communicative English**  
**Course Teacher Initials: SML**  
**Total Marks: 40**

- 1 Read the passage carefully and answer the questions below: [CLO2, PLO1, C3] Marks 12.0

**Gene editing and the ethical frontier of biotechnology**

In recent decades, advances in biotechnology have revolutionized our understanding of life at the molecular level. Among these innovations, gene editing technologies particularly CRISPR-Cas9 have emerged as powerful tools that allow scientists to modify genetic material with unprecedented precision. This capability has opened new possibilities in medicine, agriculture, and environmental science. However, it has also raised profound ethical and societal questions that remain unresolved.

One of the most promising applications of gene editing lies in the treatment of genetic disorders. Diseases caused by single-gene mutations, such as cystic fibrosis and sickle cell anemia, may potentially be corrected at their source. Unlike traditional therapies, which often focus on managing symptoms, gene editing offers the possibility of permanent cures. Nevertheless, the long-term effects of such interventions are still uncertain, particularly when changes are introduced into germline cells, which can pass modifications on to future generations.

In agriculture, gene editing has enabled the development of crops that are more resistant to pests, diseases, and environmental stress. These innovations could play a crucial role in addressing global food security challenges, especially in regions vulnerable to climate change. However, critics argue that the widespread adoption of genetically modified organisms (GMOs) may disrupt ecosystems and reduce biodiversity. There are also concerns about the monopolization of biotechnology by large corporations, which could limit access for small-scale farmers.

Beyond practical applications, gene editing raises fundamental ethical dilemmas. The possibility of "designer babies," where genetic traits such as intelligence or physical appearance are selected, has sparked intense debate. While some view this as an extension of human progress, others warn that it could exacerbate social inequalities and lead to



new forms of discrimination. The distinction between therapeutic and enhancement-based interventions is often blurred, making regulation particularly challenging.

International efforts to establish ethical guidelines for gene editing are ongoing, but consensus remains elusive. Different countries have adopted varying regulatory frameworks, reflecting diverse cultural, religious, and political perspectives. As the technology continues to evolve, it is imperative for scientists, policymakers, and society at large to engage in informed dialogue. Only through careful consideration of both the benefits and risks can the full potential of gene editing be realized responsibly.

**A. Find whether the statements are True / False / Not Given**

4×1=4

- i. CRISPR-Cas9 is the only gene-editing technology currently in use.
- ii. Gene editing can potentially provide permanent solutions to some genetic diseases.
- iii. All countries have agreed on a unified regulation for gene editing.
- iv. GMOs are universally accepted as safe and beneficial.

**B. Multiple Choice Questions**

4×1=4

- i. What is the main purpose of the passage?
  - a) To explain laboratory techniques in detail
  - b) To discuss the benefits and ethical concerns of gene editing
  - c) To criticize modern agriculture
  - d) To describe the history of biotechnology
- ii. What does the word "unprecedented" most nearly mean?
  - a) Unimportant
  - b) Never done before
  - c) Temporary
  - d) Limited
- iii. Which of the following is a concern related to GMOs?
  - a) Increased biodiversity
  - b) Ecosystem disruption
  - c) Reduced crop yield
  - d) Lack of scientific interest
- iv. What can be inferred about gene editing regulation?
  - a) It is uniform worldwide
  - b) It is unnecessary
  - c) It varies across countries
  - d) It is strictly controlled everywhere

**C. Short Answer Questions:**

4×1=4

- i. How can gene editing help treat genetic diseases?
- ii. Why is germline editing controversial?
- iii. How can gene editing contribute to food security?
- iv. What ethical issue is associated with "designer babies"?



- 2 (a) **Fill in the blanks with the Right Form of Verbs** [CLO1, PLO1, C3] 5.0
- Scientists \_\_\_\_\_ (develop) new gene-editing tools over the past decade.
  - The researcher \_\_\_\_\_ (conduct) the experiment when the equipment failed.
  - If the mutation \_\_\_\_\_ (detect) earlier, the disease could have been prevented.
  - CRISPR \_\_\_\_\_ (allow) precise modification of DNA sequences.
  - The team \_\_\_\_\_ (analyze) the data before publishing the results.
  - By next year, they \_\_\_\_\_ (complete) the genome sequencing project.
  - The cells \_\_\_\_\_ (divide) rapidly under controlled conditions.
  - She \_\_\_\_\_ (work) in the laboratory since morning.
  - If scientists \_\_\_\_\_ (ignore) ethical concerns, serious consequences may arise.
  - The experiment made the students \_\_\_\_\_ (understand) the concept clearly.
- (b) **Fill in the blanks with the most Appropriate Prepositions** [CLO1, PLO1, C3] 5.0
- The research focuses \_\_\_\_\_ gene expression.
  - Scientists are working \_\_\_\_\_ developing vaccines.
  - The results depend \_\_\_\_\_ accurate data collection.
  - He is an expert \_\_\_\_\_ molecular biology.
  - The study deals \_\_\_\_\_ genetic mutations.
  - She is responsible \_\_\_\_\_ conducting the experiment.
  - The theory is based \_\_\_\_\_ previous research findings.
  - They succeeded \_\_\_\_\_ isolating the gene.
  - The experiment resulted \_\_\_\_\_ unexpected outcomes.
  - The scientist is proud \_\_\_\_\_ her groundbreaking discovery.
- 3 Write a formal application to the Dean of the [CLO3, PLO1, C6] 8  
Faculty requesting permission to:
- Establish a Biotechnology Research Club in your department mentioning purpose of the club, benefits for the students and proposed activities.**
- 4 Write a paragraph on: [CLO3, PLO1, C6] 10  
**"Why I Chose Genetic Engineering and Biotechnology as My Field of Study"**