

QP CODE: 21000773



Reg No :

Name :

M Sc DEGREE (CSS) EXAMINATION, JULY 2021

Fourth Semester

Faculty of Science

M Sc BOTANY

**Elective - BY800402 - GENETIC ENGINEERING, GENOME EDITING AND
IMMUNOLOGY**

2019 Admission Onwards

EA283A3B

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Write the important features of pUC.
2. What is meant by transfection?
3. Differentiate chromosome jumping and walking.
4. What is gene targeting?
5. What is TALEN?
6. Write the role of the EPSP synthase gene in herbicide tolerance.
7. What is structure-based combinatorial protein engineering?
8. Define innate immunity.
9. Differentiate between Exogenous antigens and Endogenous antigens.
10. Describe the basic principle underlying the process of vaccination.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. How are the Lac Z system and GFP used in recombinant DNA technology?





12. Outline the differences between λ insertional vectors and λ replacement vectors.
13. Briefly discuss colony hybridization with a diagrammatic representation.
14. What are the major applications of site specific recombination in biotechnology?
15. Elaborate on the role of genetically modified bacteria in the pharmaceutical industry.
16. How SCID can be treated with gene therapy?
17. Compare autoimmunity and immunodeficiency with suitable examples.
18. Describe the methodology for preparing monoclonal antibodies.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Write an essay on *in vitro* DNA ligation strategies.
20. Explain the applications of genome editing technology with suitable examples.
21. Write an essay on the vectors used in gene therapy.
22. Discuss the applications of biosensors in the fields of medicine, food, agriculture and pollution monitoring.

(2×5=10 weightage)

