



End Semester/Reappear (Semester II) Examination May 2025

Programme: B. Sc. (Hons.) Agriculture

Course: Fundamentals of Genetics

Course Code: 13A.151

Enrolment no. _____

Full Marks: 50

Time: 2 Hrs.

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
Section I				
1	Short Answer type questions.			
a	Explain the concept of the Chi-square test in genetics and state its significance in evaluating Mendelian ratios.	CO1	Understand	4 x 5 = 20
	or			
b	Define the Mendelian principles of heredity and describe one example for each principle.	CO1	Remember	
	or			
c	Describe linkage and crossing over. Explain the significance of chromosome mapping in genetic studies.	CO2	Understand	
	or			
d	Explain the concept of polygenes and how they contribute to continuous variation in plant.	CO3	Understand	
	or			
e	Describe Down syndrome as a genetic disorder.	CO3	Remember	
	or			
f	Explain the structure of DNA with a neat labeled diagram and mention its characteristic features.	CO1	Remember	
	or			
g	Describe the nature and structure of DNA. Explain in detail how to DNA replication takes place in cell.	CO1	Understand	
	or			
Section II				
Long Answer type questions.				
2	Analyze how the Lac and Trp operons differ in their mechanisms of gene regulation, and what insights do they provide into the broader principles of prokaryotic gene control?	CO3	Analyze	2 x 15 = 30
	or			
3	Assess the significance of the multiple-factor hypothesis in understanding the inheritance of quantitative traits. Illustrate with an example how environmental factors can also shape these traits.	CO3	Evaluate	
	or			
4	Examine the genetic mechanisms that govern sex-limited and sex-influenced traits and their impact on phenotypic diversity within a species.	CO2	Evaluate	
	or			
5	Differentiate between spontaneous and induced mutations based on their origins and impacts. Discuss how induced mutations are utilized in crop improvement, providing relevant examples.	CO2	Analyze	
	or			

Course Outcome:

At the end of the course the student will be able to:

CO1 know about the theories and concepts in evolution of a species.

CO2 Understand about various biological process and its effect on a species.

CO 3 Determines the factors that leads to the variation in organisms

