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

M.Sc. (First Semester - Regular) Examinations, January – 2026

24MBIPC11005 - Genetics

(Biotechnology)

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(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. What is multifactorial conditions?	CO1	K1
b. What is MAT locus?	CO1	K1
c. Write few points about Darwinism	CO2	K2
d. Write the formulas for all 3 types of hetrosis.	CO3	K1
e. What are the allelic form?	CO1	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Demonstrate in detail the structure of Eukaryotic and Prokaryotic gene.	10	CO1	K1
(OR)			
b. What is Genetic complementation and other genetic crosses using phenotypic markers.	5	CO3	K2
c. Write about Transposon mutagenesis	5	CO1	K2
3.a. Summarize about tetrad analyses.	5	CO3	K1
b. Discuss about yeast mating type switch.	5	CO1	K2
(OR)			
c. Summarize the Meiotic crosses.	5	CO1	K1
d. Explain about dominant and recessive genes with examples.	5	CO2	K2
4.a. Explain Fishers theorem and Hardy Weinberg equilibrium	5	CO2	K1
b. What is spatial variation & genetic fitness in genetic evaluation.	5	CO1	K1
(OR)			
c. Discuss about linkage disequilibrium	5	CO2	K2
d. What is mutation selection and balancing selection	5	CO1	K1
5.a. What are Complex traits?	5	CO1	K2
b. Differentiate the Monohybrid & dihybrid crosses	5	CO1	K1
(OR)			
c. Discuss about the back-crosses and test-crosses in plant genetics.	5	CO1	K2
d. Explain about biochemical and molecular level for QTLs.	5	CO1	K2
6.a. Summarize about maintenance of genetic purity and gene pyramiding.	5	CO3	K3
b. Explain the models of genetic epistasis in context of developmental mechanism.	5	CO2	K1
(OR)			
c. Explain inbreeding with examples.	5	CO2	K1
d. How genetic purity is maintained. Discuss few methods.	5	CO1	K1