QP Code: RF23MSC041 | Reg. No | | | | | | | | | | | AY - 23

GIET UNIVERSITY, GUNUPUR – 765022

M. Sc. (First Semester) Regular Examinations, February – 2024

22BTPC105 – Genetics

(Biotechnology)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A **(2 x 10 = 20 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Differentiate between gene arrangement in Prokaryotes and Eukaryotes.	CO1	K3
b. Define horizontal gene transfer in Bacteria.	CO1	K1
c. What are modifier screens in yeast genetics?	CO4	K2
d. What is transposon mutagenesis in yeast genetics?	CO4	K2
e. Differentiate between intra-allelic and inter-allelic interactions.	CO2	K3
f. What is genetic drift?	CO3	K1
g. What is the law of segregation in genetics?	CO4	K1
h. Differentiate between autosomal and sex-linked genes.	CO2	K3
i. What is a quantitative trait?	CO4	K1
j. What is neutral evolution?	CO3	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO #	Blooms Level
2. a. What is marker gene?	2	CO1	K1
b. Describe the gene mapping in bacteria by transformation.	8	CO1	K2
3.a. How is gene mapping in bacteriophage performed?	5	CO1	K3
b. Describe the fine structure analysis of a bacteriophage gene.	5	CO1	K2
4. a. What do you mean by screening of mutation based on phenotype in Drosophila?	3	CO2	K2
b. Give an account of hypomorphy in context of development mechanism in Drosophila.	7	CO2	K2
5.a. What are monohybrid and dihybrid crosses?	2	CO2	K1
b. Write a detailed note on genetic mosaics in context of developmental mechanism in Drosophila.	8	CO2	K2
6. a. What is Bayesian statistics?	2	CO3	K1

b.	How can it be applicable in population genetics? Discuss with an appropriate hypothetical example.	8	CO3	K3
7.a.	What is adaptive landscape?	2	CO3	K1
b.	Describe spatial variation and genetic fitness.	8	CO3	K2
8. a.	What are meiotic crosses?	2	CO4	K1
b.	Describe the tetrad analysis in yeast.	8	CO4	K2