

PG
M.Sc. Semester-I Examination, 2021
GENETICS AND PLANT BREEDING
PAPER: GPB 101 (Theory + Practical)
(PRINCIPLES OF GENETICS)

Full Marks: 65

Time: 4 Hours

THEORY

Answer any FOUR questions from the following:

4X10 = 40

1. Explain briefly the mechanism of Crossing Over. Explain the Hardy-Weinberg equation? 5+5
2. Write the general features of transposable elements. Give a short note on IS element. Represent diagrammatically the Ac transposition mechanism. 2+3+5
3. Write a short note on chromosome packaging. Give a short note on lethal gene. 5+5
4. What is Kornberg enzyme? Write a short note on Okazaki fragment. Name different enzymes involve in DNA replication and explain their activity. 2+2+6
5. Write short notes of the following : 2 X 5
 - (a) Chromosomal theory of inheritance
 - (b) Epistasis
6. Give short note on multiple allele and extra chromosomal inheritance 5+5
7. Illustrate the molecular structure of DNA. Explain the experiment which prove the seme conservative mode of DNA replication. 6+4
8. Give a short note on mutagen and IS element. Schematically represents the molecular mechanism of DNA translation. 3+3+4

PRACTICAL

1. Answer any ONE question from the following:

1X15=15

- I. Write the identifying characters of different stages of meiosis-I cell division. Mention the staining procedure for study of mitotic cell division? 10+5
- II.
 - a) Write short note on tetrad analysis 5
 - b) Write a short note on probability 5
 - c) Write a short note on Standard Deviation. 5

(P.T.O.)

(2)

2. Answer any ONE question from the following:**1X10=10**

- I. Perform the experiment of biometry of supplied seed material. 10
- a) Large –grid –coat pattern: 19
 - b) Small –grid –coat pattern: 5
 - c) Light –diamond –coat pattern: 7
- II. Give a short note on chromosome mapping and chi-square test with example. 5+5
