

**PD-502-CV-19**

**M.Sc. (4<sup>th</sup> Semester)**

**Examination, June-2021**

**BOTANY**

**Paper-III**

**GENETIC ENGINEERING OF PLANT & MICROBES & BIostatISTICS**

**Time : Three Hours]**

**[Maximum Marks : 80**

**[Minimum Pass Marks : 29**

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**Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.**

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**Section-A**

1. Answer the following objective type questions:- 1x10=10
- (a) The PCR technique was developed by whom?
  - (b) Which technique is commonly used to introduce gene into dicotyledon plant?
  - (c) Which transgenic plant was firstly developed as virus-resistant plant?
  - (d) Successful transformation of the DNA molecule into bacterium was firstly carried by whom?
  - (e) Who is regarded as father of Biostatistics?
  - (f) The proportion of 'Chi-Square Test' were firstly investigated by whom?
  - (g) Who was the founder of Celera Genomics?
  - (h) Who firstly coined the term proteomics?
  - (i) How many types of Chemical treatments are required in Maxam-Gilbert method of sequencing?
  - (j) What is the name of site where foreign DNA can be inserted into the plasmid of Agrobacterium?
2. Answer the following short answer type questions:- 2x5=10
- (a) What do you mean by cloning? Point out the application of gene cloning.
  - (b) What is copyright? Point out its importance.
  - (c) What are micro-arrays?
  - (d) What is the application of Chi-square test.
  - (e) Point out the differences between recombinant & Transform ants.

**Section-B**

**15x4=60**

Answer the following long answer type question.

**UNIT-I**

3. Give a concise account of DNA sequencing and its application.

**OR**

Write in brief about:-

- (a) DNA finger print      (b) cDNA Library

**UNIT-II**

4. Write a descriptive account of intellectual property right and point out the possible ecological risk.

**OR**

Write short notes on:-

- (a) Agrobacterium as a natural genetic engineer.      (b) T-DNA and Transposons.

**UNIT-III**

5. Give a concise account of the genetic improvement of industrial microbes and nitrogen fixers.

**OR**

Write short notes on:-

- (a) Bacterial Transformation      (b) Fermentation Technology

UNIT-IV

6. What do you mean by Bioinformatics, and genomics? Give a concise account of plant genome project.

OR

Write a brief account of:-

- (a) Standard Deviation & Error (b) Functional genomics