



B.Sc. (Semester – V) Examination, October/November 2017
BOTANY (Paper – X)
Genetics and Plant Breeding

Duration : 2 Hours

Max. Marks : 80

- Instructions :**
- All questions are compulsory, however internal choice is available.**
 - Briefly answer sub-questions in question 1 and question 2.**
 - Figures to the right indicate maximum marks to the question/ sub-question.**
 - Draw appropriate labeled diagrams wherever necessary.**

1. Answer **any four** of the following : 16

- Write a short note on Mendel's experiments.
- Explain the phenomenon of co-dominance.
- Explain the law of segregation.
- With a suitable example, explain a test cross.
- Explain chromosome theory of Linkage.
- With an example explain complete linkage.

2. Answer **any four** of the following : 16

- Explain cytoplasmic inheritance in relation to CO₂ sensitivity in *Drosophila*.
- Write a short note on Heterogametic females.
- Explain sex linked inheritance in *Drosophila*.
- Mention four major achievements in plant breeding.
- What is seed certification ?
- Write the scientific names and center of origin of the following plants.
 - Spinach
 - Brinjal



3. A) With a suitable example, explain duplicate genes with cumulative effect. 6

OR

- A) Explain dominant epistasis with a suitable example. 6
B) Explain multiple allelism in relation to eye colour in *Drosophila*.

4. A) Discuss in brief chromosome mapping. 6

OR

- A) Explain the mechanism of meiotic crossing over. 6
B) With an example explain quantitative inheritance in Plants.

5. A) What is maternal influence and discuss its role in shell coiling? 6

OR

- A) With a suitable example explain cytoplasmic inheritance. 6
B) With a suitable example explain monofactorial sex determination.

6. A) Write a note on ICRISAT. 6

OR

- A) Write a note on horizontal and vertical resistance. 6
B) Explain the role of phytosanitary measures during seed production.