

Section A

- 1) Define plant breeding and explain in brief the general objectives of plant breeding. OR Give its aim and objectives of plant breeding.
- 2) Define pollination. Explain various mechanisms that promote cross pollination. OR Give its types and explain various mechanisms that promote cross pollination.
- 3) Define Heterosis? Enlist genetic basis/theories of Heterosis and explain in detail over dominance hypothesis.

Describe briefly various methods of estimating Heterosis.

OR

What is Heterosis? Enlist the theories and explain dominance hypothesis of Heterosis with objectives.

- 4) What is male sterility? Give its types and explain in detail Cytoplasmic Genetic Male Sterility. OR. Write its advantages and disadvantages.

OR Define Male Sterility. Enlist the different types of male sterility found in crop plants. Explain Genetic male sterility along with its merits and demerits.

- 5) Describe in detail the procedure of mutation breeding and enlist its application in crop improvement. OR

Define mutation. Explain the characteristics and significance

of mutation in crop improvement. OR

Explain types of mutagens with example and give applications of mutation breeding in crop improvement.

6) Define hybridization. Explain different steps involved in handling hybridization program. OR.

What is wide hybridization? Give its types and explain in brief barriers to wide hybridization. OR

Define distant hybridization. Enlist its types. Describe applications of distant hybridization in crop improvement with suitable examples.

7) What is incompatibility? Write its advantages and disadvantages.

8) Enlist different methods of plant breeding and discuss in brief the selection methods.

9) a) What is clone? Discuss the various characteristics of clones.

b) What is aneuploidy? Give its application in crop improvement.

10) Define backcross. Explain in brief the merits and demerits of back crossing.

11) Define recurrent selection. Explain briefly procedure of reciprocal recurrent selection and the merits and demerits of recurrent selection.

12) What is synthetic variety? Give the procedure of development of synthetic variety and its advantages?

13) Write short notes on:

- a. Pedigree breeding method and its features
- b. Hardy and Weinberg law
- c. Plant Introduction
- d. Clonal selection
- e. Recurrent selection
- f. Poly ploidy
- g. Clonal Selection
- h. Evolutionary history of hexaploid wheat
- i. Parthenogenesis

14) Differentiate between:

- a. Broad sense heritability and narrow sense heritability.
- b. Synthetics and composites.
- c. Genetic assortative and Genetic dissortative.
- d. Pure line and mass selection method.

15) Answer the following questions.

- a. Give classification of self-incompatibility on the basis of flower morphology.
- b. Give the characteristics of pure line.
- c. Enlist the various types of recurrent selection.
- d. Enlist the breeding methods for cross pollinated crops.

Section B

Que. 1) Define the following terms.

- a. Acclimatization
- b. Inbreeding depression
- c. Variation
- d. Test cross
- e. Recalcitrant seed
- f. Parthenogenesis
- g. Inbreeding
- h. Synthetic variety
- i. Dioecious
- j. Hybrid vigour
- k. Introduction
- l. Floral biology
- m. Hermaphrodite
- n. Inbreeding depression
- o. Quarantine
- p. Three way cross

Que.2) Give the contribution of the following scientists.

- 1)*Patel C.T. 2) Shull G.H. (1914). 3) Borlaug N.E. 4) Rimpu
5) Jensen N. F. 6) N. G. P. Rao 7) Thomas Fairchild

Que.3) Fill in the blanks:

- 1) The term self-incompatibility was coined by_____.
- 2) The purpose of emasculation is to prevent _____ pollination.
- 3) Single seed descent method was first suggested by_____.
- 4) The induction of poly ploidy by using Colchicines is termed as_____.
- 5) _____ refers to the development of embryos from synergids or antipodal cells without fertilization.
- 6) NBPGR stands for _____.
- 7) Mixture of several similar pure lines having different genes for disease resistance is called _____.
- 8) The process of bringing a wild species under human management is known as _____.

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