

B.Sc. (Part—I) Semester—II Examination

SEED TECHNOLOGY (Voc.)

(Plant Breeding Methods for Crop Improvement and Seed Production)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) There are **seven** questions in all.

(2) Question No. 1 is compulsory and carries 8 marks.

(3) Question Nos. 2 to 7 carry equal marks.

(4) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) When two alleles for a trait received from the parents are different the organism is said to be _____ for this trait. ½

(ii) Headquarter of NBPGR is _____ . ½

(iii) _____ selection has been commonly used breeding scheme applied to genetically variable and homozygous population of self pollinated crops. ½

(iv) Extra chromosomes are present or missing in the cell ; such condition is known as _____ . ½

(B) Choose the correct alternative (MCQ) :

(v) Individuals which contain two different chromosomes in triplicate instead of two times ($2N + 1 + 1$) are called as _____ . ½

(a) Double trisomics (b) Double tetrasomic

(c) Double pentasomic (d) Diploids

(vi) _____ originates spontaneously at a low frequency. ½

(a) Diploid (b) Aneuploid

(c) Both (d) None

(vii) When endospore development is _____ , the condition is generally known as endosperm abortion. ½

(a) Maximum (b) Neutral

(c) Poor (d) None

(viii) Relative humidity affects seed _____ content because seeds are hygroscopic. ½

(a) Heat (b) Air

(c) Soil (d) Moisture

- (C) Answer in **one** sentence :
- (ix) Which factors reduce the quality of the seed ? 1
 - (x) Define epistasis. 1
 - (xi) Which rice is a gamma ray induced semidwarf mutant variety resistance to lodging ? 1
 - (xii) The ratio of dihybrid cross is ? 1
2. Comment on :
- (a) Gene interaction. 4
 - (b) Acclimatization. 4
 - (c) Law of segregation 4
- OR**
- (d) Quarantine. 4
 - (e) Plant introduction agencies in India. 4
 - (f) Law of independent assortment. 4
3. Give detail account of artificial mutations and physical and chemical mutation. 12
- OR**
- Comment on :
- (a) Mass selection. 6
 - (b) Hybridization procedure in cross pollinated crops. 6
4. Comment on :
- (a) Classification of Polyploidy 4
 - (b) Causes of disease resistance. 4
 - (c) Allopolyploidy. 4
- OR**
- (d) Application of breeding for disease resistance. 4
 - (e) Anther culture. 4
 - (f) Effects of aneuploids. 4
5. Comment on :
- (a) Pollen viability. 4
 - (b) Genetic male sterility. 4
 - (c) Difference between seed and grain. 4

OR

- (d) Genetic purity of varieties. 4
 - (e) Factors affecting seed set. 4
 - (f) Uses of self incompatibility. 4
6. Comment on :
- (a) Pollination for hybrid seed production. 6
 - (b) Seed village concept. 6

OR

Give detail account of factors affecting the choice of area of seed production (any three). 12

7. Comment on :
- (a) Selection of land for seed production. 4
 - (b) Harvesting and threshing of seeds. 4
 - (c) Seed plot technique of potato multiplication. 4

OR

- (d) Indian seed industries. 4
- (e) Special agronomic management. 4
- (f) Roughing in wheat. 4

