

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. $\frac{1}{2}$ (ii) Headquarter of NBPGR is _____. $\frac{1}{2}$ (iii) _____ selection has been commonly used breeding scheme applied to genetically variable and homozygous population of self pollinated crops. $\frac{1}{2}$ (iv) Extra chromosomes are present or missing in the cell ; such condition is known as _____. $\frac{1}{2}$

(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 _____. $\frac{1}{2}$

(a) Double trisomics (b) Double tetrasomic

(c) Double pentasomic (d) Diploids

(vi) _____ originates spontaneously at a low frequency. $\frac{1}{2}$

(a) Diploid (b) Aneuploid

(c) Both (d) None

(vii) When endospore development is _____, the condition is generally known as endosperm abortion. $\frac{1}{2}$

(a) Maximum (b) Neutral

(c) Poor (d) None

(viii) Relative humidity affects seed _____ content because seeds are hygroscopic. $\frac{1}{2}$

(a) Heat (b) Air

(c) Soil (d) Moisture

- (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

(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

