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) As the gametes will be _____ for tallness of for dwarfness, the law of segregation is also known as law of purity of gametes. ½

(ii) The utilization of induced mutation for crop improvement is known as _____. ½

(iii) Disease _____ denotes less disease development in a genotype than that in the susceptible variety. ½

(iv) Mechanical removal of _____ is one of the most common and traditional method to eliminate self fertilization. ½

(B) Choose the correct alternative [MCQ] :—

(v) Storage fungi and insects are more active as _____ increases and thus decrease seed viability. ½

(a) Rainfall (b) Humidity

(c) Temperature (d) Air

(vi) The number of chromosomes, which make up the basic set of any species is known as _____ number. ½

(a) Haploid (b) Diploid

(c) Pentaploid (d) Polyploid

(vii) Requirement of nutrient supply can be determined by _____ test. ½

(a) Soil (b) pH

(c) Water (d) None

(viii) Which of the following crop is cross pollinated. ½

(a) Beet (b) Almond

(c) Barley (d) Mustard

(C) Answer in **one** sentence :—

(ix) Which environmental factor controls seed moisture content ? 1

(x) Dihybrid cross. 1

(xi) What is meant by epistasis ? 1

(xii) What is meant by spontaneous mutation ? 1

2. Comment on :—

(a) Law of segregation. 4

(b) Procurement of Germplasm. 4

(c) Centres of diversity. 4

OR

(d) Supplementary factor. 4

(e) Quarantine. 4

(f) Scheme for Pureline selection. 4

3. Comment on :—

(a) Heterosis in self pollinated crop. 4

(b) Merits and demerits of mass selection. 4

(c) Procedure of mutation breeding. 4

OR

(d) Procedure of mass selection. 4

(e) Molecular basis of Gene mutation. 4

(f) Application of mutation breeding. 4

4. What is meant by Polyploidy breeding ? Give detail account of Autopolyploidy and Allopolyploidy. 12

OR

(a) Plant Tissue Culture Technique. 6

(b) Methods of breeding for disease resistance. 6

5. Comment on :—

(a) Factors controlling seed development. 4

(b) Genetics of male sterility. 4

(c) Role of flowering in seed production. 4

OR

(d) Physiology of seed development. 4

(e) Characteristics of sowing quality seeds. 4

(f) Self incompatibility. 4

6. Comment on :—

(a) Pollination for hybrid seed production. 4

(b) Hand emasculation. 4

(c) Choice of area of seed production. 4

OR

(d) Gametocide. 4

(e) Insect pest. 4

(f) Seed village concept. 4

7. Give an account of seed production procedure in Sorghum. 12

OR

(a) Special organic management in wheat. 6

(b) Effect of Environment on seed quality. 6