

B.Sc. Part-II Semester—III Examination
SEED TECHNOLOGY (VOC)
(Hybrid Seed Production and Vegetable Seed Production)

Time : Three Hours]

[Maximum Marks : 80

Note :- (1) All questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) Out of two male gamete one fuses with egg to form diploid zygote this process is called _____ ½

(ii) A flower without pedicel is called _____ flower. ½

(iii) Pollen tube enters into the ovule through micropyle this is know as _____. ½

(iv) Trigonella is a example of _____ vegetable. ½

(B) Choose correct alternatives (MCQ) :

(v) Pureline a strain in which all individuals have descended by self fertilization from a single _____ individual.

(a) Homozygous

(b) Heterozygous

(c) Both (a) and (b)

(d) None ½

(vi) _____ is a root crop.

(a) Spinach

(b) Carrot

(c) Cabbage

(d) None ½

(vii) Cytoplasmic male sterility is transmitted through the ____ parent.

- (a) Female (b) Male
(c) Both (a) and (b) (d) None

(viii) _____ is a maintainer line in hybrid seed production.

- (a) Line A (b) Line R
(c) Line B (d) None

(C) Answer in **one** sentence :

(ix) What is Apomixis ?

(x) What is emasculation ?

(xi) What is isolation distance ?

(xii) What is fertilization ?

2. Comment on the following :

(a) Physiological basis of heterosis in sunflower.

(b) History of concept of heterosis.

(c) Biochemical basis of heterosis in cotton.

(d) Apomixis Sorghum.

OR

(p) Genetic basis of heterosis in pigeon pea.

(q) Apomixis in Rice.

(r) Heterosis as a commercial scale in pearl millet.

(s) Inbreeding depression.

3. Explain :

(a) Advantages of hybrid seed production.

(b) Cytoplasmic male sterility.

(c) Seed production of Restorer Line 'R'.

(d) Hybrid seed production in Pigeonpea.

OR

- (p) Seed production of maintainer Line 'B'. 3
- (q) Genetic male sterility. 3
- (r) Procedure of hybrid seed production in cotton. 3
- (s) Disadvantages of genetic male sterility. 3
4. Discuss the following :
- (a) Seed production planning in cotton. 3
- (b) Wild pollinators in safflower. 3
- (c) Floral biology of maize. 3
- (d) Field inspection sorghum. 3

OR

- (p) Agronomic practices in sorghum. 3
- (q) Land and isolation requirement in Hybrid Rice. 3
- (r) Economics of hybrid seed production. 3
- (s) Importance of maintenance of varietal purity. 3
5. Comment on the following :
- (a) Flowering habit in spinach. 3
- (b) Male sterility in Tomato. 3
- (c) Objectives of vegetative breeding. 3
- (d) Self incompatibility in solanum. 3

OR

- (p) Flowering habits in cucurbits. 3
- (q) Apomixis in crop improvement. 3
- (r) Male gamete formation in flowering plants. 3
- (s) Process of fertilization. 3

6. Discuss the process of Hybridization Techniques in vegetables and comment on significance of this process in vegetable crops. 12

OR

Discuss the process of pureline selection, its procedure and achievements. 12

7. Discuss land requirement, seeding production, breeding methods and harvesting process in Tomato. 12

OR

Discuss methods of seed production, planting cultural practices, breeding methods and seed production process in *Spinach* and *Trigonella* (Methi) 12