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 of the following :

(i) _____ refers to the absence of functional pollen grain. ½

(ii) Megaspore develops into _____. ½

(iii) Moderate inbreeding depression is shown by _____ crop. ½

(iv) Fusion of male gamete with egg is known as _____. ½

(B) Choose the correct alternative (MCQ) :

(v) Dominance hypothesis of heterosis was first proposed by _____. ½

(a) Davenport

(b) Vilmorin

(c) Banga

(d) Collins.

(vi) Cross pollinated species is _____. ½

(a) Cotton

(b) Mango

(c) Cycas

(d) None.

(vii) Vegetative reproduction is based on _____. ½

(a) Respiration

(b) Mitosis

(c) Photosynthesis

(d) None.

(viii) Self fertilize species are naturally _____. ½

(a) Heterozygous

(b) Homozygous

(c) Both

(d) None.

(C) Answer in one sentence :

(ix) Define pollination. 1

(x) What is meant by emasculation ? 1

(xi) Define restorer gene. 1

(xii) What is back cross ? 1

2. Describe in detail genetic and biochemical basis of heterosis. 12

OR

Define apomixis and explain its exploitation in hybrid Sorghum and Rice. 12

3. Explain :
   (a) Cytoplasmic male sterility. 4
   (b) Advantages of genetic male sterility. 4
   (c) Procedure of hybrid seed production in cotton. 4

OR

   (p) Role of marker gene in genetic male sterility. 4
   (q) Synchronisation methods of hybrid seed production 4
   (r) Seed production of restorer line 'R'. 4

4. Comment on :
   (a) Seed production planning of cotton. 4
   (b) Wild pollinators. 4
   (c) Maintenance of varietal purity in Sorghum. 4

OR

   (p) Harvesting and threshing in Sunflower. 4
   (q) Seed production planning in hybrid Rice. 4
   (r) Land and isolation requirement in Maize. 4

5. Comment on :
   (a) Objectives of vegetable breeding. 4
   (b) Artificial seed. 4
   (c) Sporophytic self incompatibility in vegetable crops. 4

OR

   (p) Formation of male gametophyte. 4
   (q) Apomixis 4
   (r) Flowering habit in cucurbits. 4

6. Explain :
   (a) Back cross and triple cross. 4
   (b) Single seed descent method. 4
   (c) Clonal selection in vegetables. 4

OR

   (p) Testing of clones. 4
   (q) Hand pollination 4
   (r) Use of equipment required in hybridisation techniques. 4

7. Describe in detail method of seed production in Tomato. 12

OR

Discuss present status and future prospects in vegetable seed production and add a note on importance of vegetable seed production. 12