

## B.Sc. (Part-I) Semester-I Examination

## SEED TECHNOLOGY (VOC)

## (Seed Development, Seed Physiology and Introduction to Plant Breeding)

Time : Three Hours]

[Maximum Marks : 80

**Note** :— (1) All questions are compulsory.

(2) Draw neat and well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) Seed with endosperm is known as \_\_\_\_\_.  $\frac{1}{2}$ (ii) \_\_\_\_\_ is the measure of the quality of seed and involves the viability of seed.  $\frac{1}{2}$ (iii) \_\_\_\_\_ is the mechanism to prevent germination during unsuitable ecological conditions.  $\frac{1}{2}$ (iv) Fusion of male gametes with femal gametes is known as \_\_\_\_\_.  $\frac{1}{2}$ 

(B) Choose the correct alternative (MCQ) :

(v) \_\_\_\_\_ is required by the germinating seed for metabolism.  $\frac{1}{2}$ 

(a) Methane

(b) Sulphur

(c) Oxygen

(d) None of above

(vi) Pollination carried out by insect is known as :  $\frac{1}{2}$ 

(a) Anaemophily

(b) Entomophily

(c) Hydrophily

(d) None of above

(vii) Meiosis is a process in which there is formation of \_\_\_\_\_ haploid spores.  $\frac{1}{2}$ 

(a) One

(b) Two

(c) Three

(d) Four

(viii) Micropropagation was first put forth by \_\_\_\_\_ in 1960 in Orchid.  $\frac{1}{2}$ 

(a) Flemming

(b) Schenk

(c) Morell

(d) Hildrebrandt

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

(ix) Define Autogamy. 1

(x) Define apomixis. 1

(xi) Define fertilisation. 1

(xii) What is the use of electrophoresis ? 1

2. Comment on :

(a) Texture of seed. 3

(b) Nuclear endosperm. 3

(c) Harvestable maturity of seeds. 3

(d) Sequential approach in testing. 3

OR

- (p) Peroxidase test. 3  
 (q) Use of laboratory techniques. 3  
 (r) Electrophoresis. 3  
 (s) Diauxic development of fruit. 3  
 3. Describe in detail factors affecting seed germination and its implications. 12

**OR**

Explain :

- (a) Chemical composition of seeds. 6  
 (b) Seedling abnormalities in dicot crop. 6  
 4. Describe in brief seed germination stimulators and inhibitors. 12

**OR**

Explain :

- (a) Seed dormancy and ecological implications. 6  
 (b) Seed deterioration during storage. 6  
 5. Comment on :  
 (a) Seed longevity. 3  
 (b) Seed pelleting. 3  
 (c) Significance of micropropagation techniques. 3  
 (d) Artificial seed production. 3

**OR**

- (p) Seed vigour. 3  
 (q) Treatment to minimize seed ageing. 3  
 (r) Problems of seed dormancy. 3  
 (s) Scope and limitations in micropropagation techniques. 3  
 6. Discuss :  
 (a) Nature and scope of plant breeding. 3  
 (b) DUS system. 3  
 (c) Structure of microsporangium. 3  
 (d) Development of female gametophyte. 3

**OR**

- (p) Structure of Megasporangium. 3  
 (q) Autogamy. 3  
 (r) Grow out test in cotton. 3  
 (s) Objectives of plant breeding. 3  
 7. Explain :  
 (a) Bio-chemical basis of self incompatibility. 3  
 (b) Germination of pollen grain. 3  
 (c) Parts of plants used for propagation. 3  
 (d) Double fertilisation. 3

**OR**

- (p) Utility of male sterility in hybrid seed production. 3  
 (q) Agencies for cross pollination. 3  
 (r) Structure of flower. 3  
 (s) Cytoplasmic sterility. 3