

**D-6621**

**M.Sc. (II<sup>nd</sup> Semester) Examination, 2020**

**BOTANY**

**(Developmental Biology)**

***Time Allowed : Three Hours***

***Maximum Marks : 70***

**SECTION - A**

**Note :** All questions of Section “A” are compulsory.

**Q. 1.** Objective type (solve any ten) : **1×10=10**

- (i) The male reproductive parts of a flower, the stamens, are collectively known as \_\_\_\_\_.
- (ii) The protective covering over radical during the germination of seeds is \_\_\_\_\_.
- (iii) Tegmen is the name of \_\_\_\_\_.
- (iv) Importance of day length in flowering of plants was first shown in \_\_\_\_\_.

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- (v) Phototropic curvature is the result of uneven distribution of \_\_\_\_\_.
- (vi) A fertilized egg is called a :
  - (a) Embryo
  - (b) Germ cell
  - (c) Zygote
  - (d) Blastula
- (vii) Differentiation of shoot is controlled by :
  - (a) High auxin : cytokinin ratio
  - (b) High cytokinin : auxin ratio
  - (c) High gibberellin : cytokinin ratio
  - (d) High gibberellin : auxin ratio
- (viii) Formation of embryoids from pollen grains in the tissue culture medium is due to :
  - (a) Organogenesis

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- (b) Somaclonal variation
  - (c) Cellular totipotency
  - (d) Test tube culture
- (ix) Stems modified into flat green organs performing functions of leaves are terms :
- (a) Cladodes
  - (b) Phylloclades
  - (c) Phyllodes
  - (d) Scales
- (x) Process of formation of seeds without fertilization in flowering plants is called :
- (a) Sporulation
  - (b) Budding
  - (c) Somatic hybridization
  - (d) Apomixis

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- (xi) What is the function of the filiform apparatus ?
- (a) Guide the entry of pollen tube
  - (b) Recognize the suitable pollen at the stigma
  - (c) Stimulate division of the generative cell
  - (d) Produce nectar
- (xii) The most common type of ovule in angiosperm is :
- (a) Amphitropous
  - (b) Anatropous
  - (c) Circinotropous
  - (d) Orthotropous

**SECTION - B**

**Note :** Attempt any five questions. Each question carries two marks. **5×2=10**

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**Q. 2.** Write notes (very short answer type 25-30 words

only) :

- (i) Pollination
- (ii) Germination
- (iii) Fertilization
- (iv) Developmental biology
- (v) Reproduction
- (vi) Embryogenesis
- (vii) Archaeology

**SECTION - C**

**Note :** Attempt any five questions. Each question carries 4 marks. **5×4=20**

**Q. 3.** Write short answer in 250 words :

- (i) Development of shoots
- (ii) Wood development and its diversity

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- (iii) Male sterility mechanisms
- (iv) In-vivo and in-vitro pollen germination
- (v) Somatic embryogenesis
- (vi) Polyembryony
- (vii) Xylem and phloem

**SECTION - D**

**Note :** Attempt any three questions. Each question carries 10 marks. **3×10=30**

**Q. 4.** Write essay type answer with internal choice where necessary (more than 500 words) :

- (i) Comments on archegoniatae. Write about origin and pattern of development of cortex and pith in conifers.
- (ii) Describe the leaf growth and differential with suitable examples.

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(iii) Explain the development of flowers with diagram.

(iv) Describe the pollen tube growth and self-compatibility mechanisms.

**Or**

Explain the seed and endosperm development.

