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# H-6621

## M.Sc. (Semester-II) Examination, July 2022

## BOTANY

## ( Developmental Biology )

***Time Allowed : Three Hours***

***Maximum Marks :70***

***Minimum Passing Marks : 25***

**Note :** Question paper is divided into four sections A, B, C and D. Attempt each section as per direction given with the section.

### SECTION-A

### ( Objective Type Questions )

**Note :** Attempt **any ten** questions. Each question carries **1** mark. [1×10=10]

1. (i) What is true about Bryophytes ?

(a) Sporophytic plant body and necessity of water for fertilization.

(b) Gametophytic plant body and necessity of water for fertilization.

(c) Gametophytic plant body and non-motile male gametes.

(d) Sporophytic plant body and motile male gametes.

(ii) In self incompatibility :

(a) pollen grains of the same flower show incompatibility reaction

(b) pollen grains from any plant are not able to effect fertilization

(c) pollen grains from the flowers of same plant are incompitable.

(d) both (a) and (c)

(iii) Mark the correct statement :

(a) The sporophyte of *Marchantia* is differentiated into foot, seta and capsule.

(b) The sporophyte of *Riccia* is having capsule only

(c) Both in *Riccia* and *Marchantia* rhizoids are smooth walled and tuberculate.

(d) All of the above

(iv) Another term used for 'XYLEM' is :

(a) Wood

(b) Hadrom

(c) Both (a) and (b)

(d) None of these

(v) During secondary growth in a dicot stem fusiform initials from :

(a) Secondary xylem towards inner side and secondary phloem towards outer side

(b) Both secondary xylem and secondary phloem towards inner side

(c) Both secondary xylem and secondary phloem towards outer side

(d) Secondary xylem, secondary phloem and medullary rays

(vi) The most common type of ovule in angiosperms is :

(a) Anatropous and is found in 82% angiospermic families

(b) Atropous and is found in 82% angiospermic families

(c) Circinotropous and is found in 81% angiospermic families

(d) None of the above

(vii) In megasporogenesis, megaspore mother cell results :

(a) formation of 4 haploid megaspores in which one becomes functional megaspore

(b) formation of only one megaspore

(c) formation of 4 functional megaspores

(d) None of the above

(viii) Functional megaspore developes to form :

(a) female gametophyte

(b) male gametophyte

(c) Embryo sac

(d) Both (a) and (c)

(ix) In a complete flower :

(a) All the four floral whorls are present

(b) Both male and female reproductive organs are present

(c) There is dioeciousness

(d) All of the above

(x) Endosperm formation is a result of :

(a) Double fertilization

(b) Fertilization

(c) Microsporogenesis

(d) Megasporogenesis

(xi) P. Maheshwari is a known :

(a) Plant Pathologist

(b) Ecologist

(c) Embryologist

(d) Taxonomist

(xii) Parthenocarpy is :

(a) Development of fruit without fertilization

(b) Development of ovary after fertilization

(c) Formation of female gametes

(d) Formation of male gametes

## SECTION-B

### ( Very Short Answer Type Questions )

**Note:** Answer **any five** questions. Each question carries **2** marks. (Word limit **25 - 50** words) [2x5=10]

2. (i) Triple fusion

(ii) Perfect flower

(iii) Elaterophore

(iv) Campylotropous ovule

(v) Herkogamy

(vi) First land vascular plants

(vii) Fascicular cambium

## SECTION-C

### ( Short Answer Type Questions )

**Note:** Answer **any five** questions. Each question carries **4** marks. (Word limit **250** words) [4x5=20]

3. (i) Enumerate differences between Bryophytes and Pteridophytes.

(ii) With the help of suitable diagrams describe differences between the sporophytes of *Riccia*, *Marchantia* and *Pellia*.

(iii) Write steps of microsporogenesis in angiosperms.

(iv) Pollen germination and path of pollen tube.

(v) Development of endosperm in Gymnosperms and Angiosperms

(vi) Enumerate anatomical adaptation in hydrophytes.

(vii) What is INCONGRUITY?

## SECTION-D

### ( Long Answer Type Questions )

**Note:** Answer **any three** questions. Each question carries **10** marks: (Word limit **500** words) [3x10=30]

4. (i) "There is gradual sterilization of sporophytic tissue in Bryophytes." Justify the statement with the help of suitable examples and figures.

(ii) Discuss secondary growth in dicot stem with the help of suitable diagrams. Also write about the annual ring.

(iii) What is self incompatibility? Describe self incompatibility with the help of 'Opposition s-allele hypothesis'.

(iv) Write a descriptive note on apomixis.

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