Progressive Education Society's
Modern College of Arts, Science & Commerce, Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: April 2024
Faculty: Science and Technology

Program: B. Sc. Biotech (04) **Semester: IV** **SET: B**
Program (Specific): Biotechnology **Course Type: Core**
Class: S. Y. B. Sc. **Max. Marks: 35**
Name of the Course: Plant Development
Course Code: 23 BBT-405 **Time: 2 Hr**

Instructions to the candidate:

1) ***There are 4 sections in the question paper. Write each section on separate page.***
2) ***All Sections are compulsory.***
3) ***Figures to the right indicate full marks.***
4) ***Draw a well labelled diagram wherever necessary.***

SECTION: A

Q1) Answer any <u>FIVE</u> of the following (5/6) **5**

1. What are metamers?
2. What is the cellular and ploidy level of plant zygote?
3. Define pollination.
4. Give examples of any two plant growth regulators.
5. Enlist any two floral meristem identity genes.
6. State the role of the callose plug during the pollen germination.

SECTION: B

Q2) Answer any <u>FIVE</u> of the following (5/6) **10**

1. Describe briefly the primary and secondary growth in plants.
2. Tabulate the different levels of plant growth.
3. Draw a neat labeled diagram of the orthotropous ovule.
4. Give the role of synergids and egg cell present in the egg sac.
5. What is cell differentiation? Give any one example.
6. Describe briefly the natural parthenocarpy.

[P.T.O.]

SECTION: C

Q3) Answer any <u>TWO</u> of the following (2/4) **8**

1. Distinguish between the development process in plants and animals.
2. Explain the network of genes in the SAM which helps in maintaining the undifferentiated state of the meristematic cells.
3. What is cellular totipotency in plants? Describe the concept of cell determination and commitment.
4. Enlist the various physiological and molecular characteristics of *Arabidopsis* making it a suitable model system to study plant development.

SECTION: D

Q4) Answer any <u>TWO</u> of the following (2/4) **12**

1. Describe the ABC model of the flower patterning.
2. Draw a neat labeled diagram of the process describing the formation of a viable pollen grain from microspore mother cells.
3. What is embryogenesis? Explain the various stages observed during the embryogenesis in monocot plants.
4. What is the significance of seed dispersal? Explain any four modes of seed dispersal.