

Date: 03/03/2019

To

The Principal
Shri. Mohatadevi Shikshan Sanstha
Pragati Mahavidyalaya
Sawkheda, Tq. Sillod
Dist. Aurangabad

Subject: Proposal for Running the Certificate Course Entitled "*Plant Anatomy and Physiology*" for the Academic Year 2019-20

Respected Sir,

I am writing to propose the introduction of a certificate course titled "*Plant Anatomy and Physiology*" for the Botany department students in the academic year 2019-20. This course is designed to be a comprehensive program of 32 hours, aimed at enhancing the students' understanding of key concepts in plant anatomy and physiology.

The proposed course will cover the following key areas:

1. Detailed study of plant cell structure and tissue types.
2. Mechanisms of plant physiological processes including photosynthesis, respiration, and nutrient uptake.
3. Practical applications of plant anatomy and physiology in agricultural and research settings.

The objectives of this course are to:

- Provide students with a deeper insight into the structural and functional aspects of plants.
- Equip students with practical knowledge applicable to both academic and professional pursuits.
- Enhance the overall quality of education in the Botany department by introducing specialized content.

The course will be conducted by qualified faculty members and will include both theoretical and practical sessions to ensure a well-rounded educational experience.

I kindly request your approval to initiate this certificate course for the upcoming academic year. I believe this course will greatly benefit our students and contribute to their academic and professional growth.

Thank you for considering this proposal. I look forward to your favorable response.

Yours sincerely,



Head of Department, Botany
Pragati Mahavidyalaya
Sawkheda, Tq. Sillod
Dist. Aurangabad



Shri Mohatadevi Shikshan Sanstha, Aurangabad.

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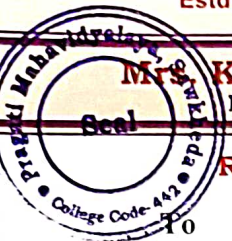
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College Code: 442 Exam. Center Code: 291

Website: www.pragatisawkheda.co.in

Email: pragatiiqac2016@gmail.com, pragatimahavidyalaya442@gmail.com

Contact: 9822021784, 8888611717



Mrs. Kaveri Palkar
President

Mrs. Archana Mukhekar
Secretary

Dr. Varsha Phalke
Principal

Ref No.: PMS/2019-2020/03

Date : 06/09/2019

To
The Head of Department, Botany
Pragati Mahavidyalaya
Sawkheda, Tq. Sillod
Dist. Aurangabad

Subject: Sanction for Running the Certificate Course "*Plant Anatomy and Physiology*" for the Academic Year 2019-20

Dear Sir,

I am pleased to inform you that the proposal for the certificate course entitled "*Plant Anatomy and Physiology*" has been reviewed and approved by the college administration.

We have sanctioned the course of 32 hours as outlined in your proposal. This course is aimed at enhancing the academic experience and practical knowledge of our Botany department students.

Please proceed with the necessary preparations and arrangements for the course. Ensure that all logistical aspects, including faculty assignments, scheduling, and resource allocation, are in place to facilitate the smooth conduct of the program.

Kindly submit a detailed plan of the course execution, including schedules and any additional requirements, for our records.

Thank you for your initiative in developing this valuable educational opportunity for our students. We look forward to the successful implementation of the course.

Yours sincerely,

Principal
Shri. Mohatadevi Shikshan Sanstha
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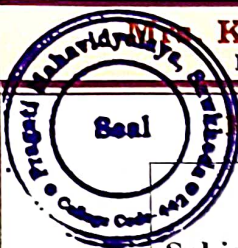
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Ref No.: PMS/2019-2020/03

Date: 06/09/2019

NOTICE

Subject: Introduction of Certificate Course "*Plant Anatomy and Physiology*"

Dear Students,

We are pleased to announce the introduction of a new certificate course titled "*Plant Anatomy and Physiology*" for the academic year 2019-20. This course aims to provide a comprehensive understanding of plant anatomy and physiological processes, enhancing your academic and practical knowledge in the field of Botany.

Course Details:

- **Title:** Plant Anatomy and Physiology
- **Duration:** 32 hours

Course Highlights:

- Detailed study of plant cell structure and tissue types.
- Exploration of key physiological processes such as photosynthesis and respiration.
- Practical applications relevant to both academic research and real-world scenarios.

Eligibility: Open to all Botany department students.

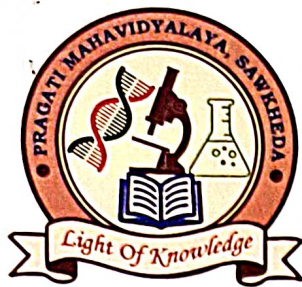
Registration: Please register your interest by at the Botany department office.

For further details or queries, you may contact the department office

We encourage all interested students to take advantage of this opportunity to deepen your understanding of plant sciences and enhance your academic skills.

Head of Department, Botany

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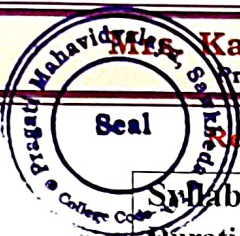
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Estd: 2016



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Ref No.: PMS/20 - 20 - /

Date : - / - /20

Syllabus for Certificate Course: Plant Anatomy and Physiology

Duration: 32 Hours

Course Overview:

This course provides an in-depth understanding of plant anatomy and physiology, focusing on the structural and functional aspects of plants. It includes both theoretical and practical components to ensure a comprehensive learning experience.

Week 1: Introduction to Plant Anatomy

Hours: 8

1. **Introduction to Plant Anatomy** (2 hours)
 - Definition and importance
 - Historical perspectives
2. **Plant Cell Structure** (3 hours)
 - Cell wall, cell membrane, and cell organelles
 - Types of plant cells: Parenchyma, Collenchyma, Sclerenchyma
3. **Plant Tissue Systems** (3 hours)
 - Dermal, vascular, and ground tissues
 - Functions and characteristics

Week 2: Advanced Plant Anatomy

Hours: 8

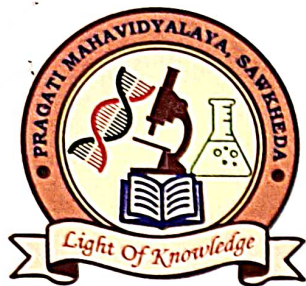
1. **Plant Organs** (4 hours)
 - Roots: Structure, types, and functions
 - Stems: Structure, types, and functions
 - Leaves: Structure, types, and functions
2. **Reproductive Structures** (4 hours)
 - Flowers: Anatomy, types, and functions
 - Fruits and seeds: Development and types

Week 3: Introduction to Plant Physiology

Hours: 8

1. **Photosynthesis** (4 hours)
 - Process and mechanisms
 - Photosynthetic pigments and their roles
2. **Respiration** (2 hours)
 - Cellular respiration: Glycolysis, Krebs cycle, Electron transport chain
 - Comparison with photosynthesis
3. **Water and Nutrient Transport** (2 hours)
 - Xylem and phloem: Structure and functions
 - Mechanisms of water and nutrient uptake

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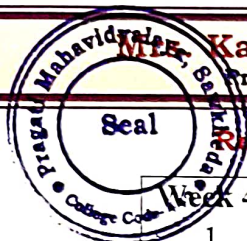
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Week 4: Advanced Plant Physiology

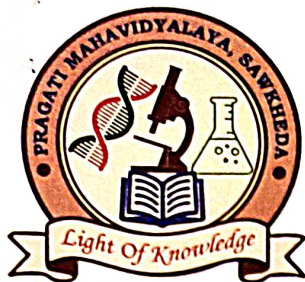
Hours: 8

1. **Growth and Development** (3 hours)
 - Hormonal control of growth
 - Plant growth regulators: Auxins, Gibberellins, Cytokinins, Abscissic acid
2. **Stress Physiology** (2 hours)
 - Responses to environmental stresses: Drought, salinity, temperature
 - Adaptations and tolerance mechanisms
3. **Practical Applications and Laboratory Work** (3 hours)
 - Microscopy: Examining plant tissues
 - Experiments on photosynthesis and respiration
 - Field visits (if applicable) and hands-on activities

Assessment:

- **Assignments:** Short essays and case studies (10%)
- **Quizzes:** On theoretical concepts (20%)
- **Practical Exam:** Laboratory work and practical applications (30%)
- **Final Exam:** Comprehensive test covering all course topics (40%)

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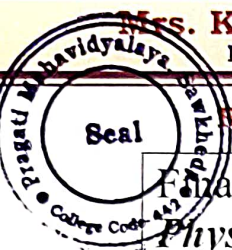
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Final examination of the certificate course "*Plant Anatomy and Physiology*"

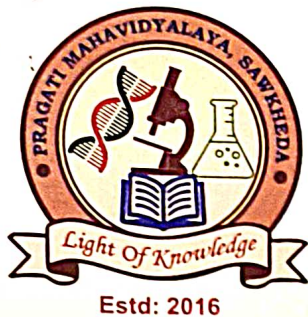
Multiple-Choice Questions

(30 Marks)

- Which of the following is a primary tissue type in plants?
 - A. Xylem
 - B. Phloem
 - C. Parenchyma
 - D. Sclerenchyma
- What is the primary function of the plant cell wall?
 - A. Photosynthesis
 - B. Support and protection
 - C. Nutrient absorption
 - D. Respiration
- Which cell type is most commonly involved in photosynthesis?
 - A. Sclerenchyma
 - B. Collenchyma
 - C. Parenchyma
 - D. Xylem
- In which plant tissue would you find sieve tube elements?
 - A. Xylem
 - B. Phloem
 - C. Epidermis
 - D. Ground tissue
- The primary function of root hairs is to:
 - A. Store nutrients
 - B. Anchor the plant
 - C. Increase surface area for water absorption
 - D. Support the plant
- Which structure in the leaf is responsible for gas exchange?
 - A. Cuticle
 - B. Epidermis
 - C. Stomata
 - D. Xylem
- The plant hormone responsible for cell elongation is:
 - A. Absciscic acid
 - B. Auxin
 - C. Cytokinin
 - D. Gibberellin

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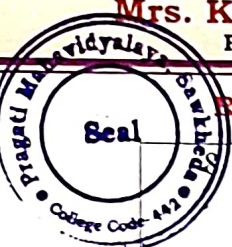
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Which process occurs in the chloroplasts of plant cells?

- ☐ A. Cellular respiration
- ☐ B. Photosynthesis
- ☐ C. Protein synthesis
- ☐ D. DNA replication

9. The tissue responsible for transporting water from roots to leaves is:

- ☐ A. Phloem
- ☐ B. Xylem
- ☐ C. Parenchyma
- ☐ D. Collenchyma

10. Which of the following is NOT a type of plant tissue?

- ☐ A. Epidermal
- ☐ B. Vascular
- ☐ C. Connective
- ☐ D. Ground

11. What is the role of gibberellins in plant growth?

- ☐ A. Promote leaf abscission
- ☐ B. Inhibit seed germination
- ☐ C. Stimulate stem elongation
- ☐ D. Increase root growth

12. In which organelle does cellular respiration take place?

- ☐ A. Nucleus
- ☐ B. Mitochondria
- ☐ C. Ribosome
- ☐ D. Chloroplast

13. Which plant structure is adapted for protection and reducing water loss?

- ☐ A. Stomata
- ☐ B. Cuticle
- ☐ C. Phloem
- ☐ D. Xylem

14. What is the primary function of phloem in plants?

- ☐ A. Transport of water
- ☐ B. Transport of nutrients
- ☐ C. Transport of sugars
- ☐ D. Support and structure

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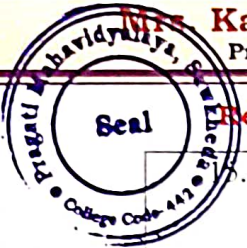
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15. Which part of the plant is involved in the production of gametes?

- ☐ A. Root
- ☐ B. Leaf
- ☐ C. Flower
- ☐ D. Stem

16. The waxy layer on the surface of leaves is known as:

- ☐ A. Epidermis
- ☐ B. Cuticle
- ☐ C. Stomata
- ☐ D. Mesophyll

17. Which plant hormone helps in seed dormancy and stress responses?

- ☐ A. Auxin
- ☐ B. Gibberellin
- ☐ C. Abscissic acid
- ☐ D. Cytokinin

18. The process by which plants convert light energy into chemical energy is called:

- ☐ A. Respiration
- ☐ B. Photosynthesis
- ☐ C. Fermentation
- ☐ D. Transpiration

19. Which of the following tissues provides structural support to the plant?

- ☐ A. Parenchyma
- ☐ B. Collenchyma
- ☐ C. Sclerenchyma
- ☐ D. Epidermis

20. The structure responsible for the transport of nutrients in plants is:

- ☐ A. Xylem
- ☐ B. Phloem
- ☐ C. Parenchyma
- ☐ D. Epidermis

21. In which part of the plant does photosynthesis primarily occur?

- ☐ A. Root
- ☐ B. Flower
- ☐ C. Leaf
- ☐ D. Stem

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22. Which process involves the loss of water vapor from plant leaves?

- A. Photosynthesis
- B. Respiration
- C. Transpiration
- D. Absorption

23. Which plant tissue type is involved in the storage of food and nutrients?

- A. Epidermis
- B. Sclerenchyma
- C. Collenchyma
- D. Parenchyma

24. The hormone that promotes cell division in plants is:

- A. Absciscic acid
- B. Cytokinin
- C. Auxin
- D. Gibberellin

25. What is the role of xylem in plants?

- A. Transport of sugars
- B. Transport of water and minerals
- C. Storage of nutrients
- D. Photosynthesis

26. Which of the following is NOT a type of plant tissue system?

- A. Epidermal
- B. Vascular
- C. Ground
- D. Connective

27. The opening and closing of stomata is primarily regulated by:

- A. Water pressure in guard cells
- B. Hormone levels
- C. Temperature
- D. Light intensity

28. Which plant hormone is responsible for promoting leaf and fruit abscission?

- A. Cytokinin
- B. Gibberellin
- C. Absciscic acid
- D. Auxin

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In which part of the plant does the majority of nutrient absorption occur?

- A. Stem
- B. Leaf
- C. Root
- D. Flower

30. The structure responsible for the transport of organic compounds is:

- A. Xylem
- B. Phloem
- C. Epidermis
- D. Ground tissue

Answer Key

1. C. Parenchyma
2. B. Support and protection
3. C. Parenchyma
4. B. Phloem
5. C. Increase surface area for water absorption
6. C. Stomata
7. B. Auxin
8. B. Photosynthesis
9. B. Xylem
10. C. Connective
11. C. Stimulate stem elongation
12. B. Mitochondria
13. B. Cuticle
14. C. Transport of sugars
15. C. Flower
16. B. Cuticle
17. C. Absciscic acid
18. B. Photosynthesis
19. C. Sclerenchyma
20. B. Phloem
21. C. Leaf
22. C. Transpiration
23. D. Parenchyma
24. B. Cytokinin
25. B. Transport of water and minerals
26. D. Connective
27. A. Water pressure in guard cells
28. C. Absciscic acid
29. C. Root
30. B. Phloem

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