Anatomy of Flowering Plants

Part-1

WORKSHEET

Multiple Choice Questions (MCQs)

1. The study of internal plant structures is called:

   (a) Morphology

   (b) Plant anatomy

   (c) Physiology

   (d) Taxonomy

2. Who is known as the father of plant anatomy?

   (a) Karl Nageli

   (b) Nehemiah Grew

   (c) Katherine Esau

   (d) Robert Hooke

3. The term "meristem" was coined by:

   (a) Nehemiah Grew

   (b) Katherine Esau

   (c) Karl Nageli

   (d) Charles Darwin

4. Meristematic tissue is characterized by:

   (a) Differentiated cells

   (b) Active cell division

   (c) Large vacuoles

   (d) Secondary cell walls

5. The cell wall of meristematic cells is:

   (a) Thick and lignified

   (b) Thin and cellulosic

   (c) Secondary and rigid

   (d) Absent

6. The shape of meristematic cells is typically:

   (a) Elongated

   (b) Isodiametric

   (c) Irregular

   (d) Spindle-shaped

7. Which organelle is absent or in proplastid stage in meristematic cells?

   (a) Nucleus

   (b) Mitochondria

   (c) Plastids

   (d) Ribosomes

8. Intercellular spaces in meristematic tissue are:

   (a) Large and abundant

   (b) Absent

(c) Filled with air

(d) Filled with ergastic substances

9. Reserve food in meristematic cells is:

(a) Abundant

(b) Absent

(c) Stored as starch

(d) Stored as lipids

10. Which feature of meristematic cells supports rapid division?

(a) Large vacuoles

(b) Dense cytoplasm

(c) Thick secondary walls

(d) Sparse nucleus

Assertion and Reasoning Questions

11. **Assertion ((A)**: Meristematic tissue is responsible for plant growth.

Reason (R): Meristematic cells are actively dividing and undifferentiated.

(a) Both A and R true, R explains A

(b) Both A and R true, R does not explain A

(c) A true, R false

(d) A false, R true

12. **Assertion ((A)**: Meristematic cells lack intercellular spaces.

Reason (R): They have thick secondary cell walls.

(a) Both A and R true, R explains A

(b) Both A and R true, R does not explain A

(c) A true, R false

(d) A false, R true

13. **Assertion ((A)**: Plastids in meristematic cells are in the proplastid stage.

Reason (R): Meristematic cells are highly differentiated.

(a) Both A and R true, R explains A

(b) Both A and R true, R does not explain A

(c) A true, R false

(d) A false, R true

Application-Based Questions

14. A botanist observes actively dividing cells at the tip of a plant root. These cells are part of:

(a) Parenchyma

(b) Meristematic tissue

(c) Collenchyma

(d) Sclerenchyma

15. A plant tissue with small, isodiametric cells and dense cytoplasm is likely:

(a) Xylem

(b) Phloem

(c) Meristematic tissue

(d) Epidermis

16. During plant tissue culture, cells that rapidly divide to form a callus are:

(a) Sclerenchyma

(b) Meristematic cells

(c) Parenchyma

(d) Collenchyma

Multiple Correct Answer Questions

17. Which of the following are true for meristematic tissue?

(A) Active cell division

(B) Thin primary cell walls

(C) Large vacuoles

(D) Dense cytoplasm

Options:

(a) A, C, D

(b) B, C, D

(c) A, B, D

(d) A, B, C

18. Which features characterize meristematic cells?

(A) Isodiametric shape

(B) Abundant plasmodesmata

(C) Secondary cell walls

(D) Prominent nucleus

Options:

(a) A, C, D

(b) B, C, D

(c) A, B, D

(d) A, B, C

19. Which are true for meristematic tissue's organization?

(A) Protoplasmic level

(B) No intercellular spaces

(C) Ergastic substances present

(D) Proplastids or absent plastids

Options:

(a) A, C, D

(b) B, C, D

(c) A, B, D

(d) A, B, C

Matching Type Questions

20. Match the feature of meristematic tissue with its description:

(A) Cell wall

(B) Cytoplasm

(C) Plastids

(D) Vacuoles

1. Dense and metabolically active
2. Thin, cellulosic, and primary
3. Absent or in proplastid stage
4. Absent or small

Options:

(a) A–1, B–2, C–3, D–4

(b) A–2, B–1, C–3, D–4

(c) A–3, B–2, C–1, D–4

(d) A–2, B–3, C–1, D–4

21. Match the scientist with their contribution:

(A) Nehemiah Grew

(B) Karl Nageli

(C) Katherine Esau

(D) Robert Hooke

1. Coined term "meristem"
2. Father of plant anatomy
3. Wrote "The Anatomy of Seed Plants"
4. Discovered cells

Options:

(a) A–2, B–1, C–3, D–4

(b) A–1, B–2, C–3, D–4

(c) A–3, B–1, C–2, D–4

(d) A–2, B–3, C–1, D–4

Previous Year Medical Entrance Exam Questions

22. **NEET 2020**: The tissue responsible for active cell division in plants is:

(a) Parenchyma

(b) Meristematic tissue

(c) Sclerenchyma

(d) Collenchyma

23. **AIIMS 2019**: Meristematic cells are characterized by:

(a) Thick secondary cell walls

(b) Dense cytoplasm and prominent nucleus

(c) Large intercellular spaces

(d) Abundant reserve food