

**SSR Degree and PG College(A)**

**Department of Botany**

**DEVELOPMENTAL ANATOMY AND PALYNOLOGY**

**M.SC BOTANY**

**SEM 2 INTERNAL-I**

I.MCQS

1. The quiescent center is present in the:

- A) Leaf apex
- B) Root apex
- C) Stem node
- D) Cambium

Answer: B) Root apex

2. The quiescent center was proposed by:

- A) Haberlandt
- B) Clowes
- C) Strasburger
- D) Bower

Answer: B) Clowes

3. The outermost tissue of the root apex is:

- A) Pericycle
- B) Cortex
- C) Epidermis
- D) Root cap

Answer: D) Root cap

4. The shoot apical meristem is responsible for:

- A) Secondary growth

B) Primary growth

C) Guttation

D) Respiration

Answer: B) Primary growth

5. Tunica-carpus organization is found in:

A) Root apex

B) Leaf lamina

C) Shoot apex

D) Cortex

Answer: C) Shoot apex

6. The tunica mainly divides in:

A) Random planes

B) Periclinal planes

C) Anticlinal planes

D) Diagonal planes

Answer: C) Anticlinal planes

7. Kranz anatomy is characteristic of:

A) CAM plants

B) C3 plants

C) C4 plants

D) Bryophytes

Answer: C) C4 plants

8. Bundle sheath cells are prominent in:

A) C3 leaves

B) C4 leaves

C) Moss leaves

D) Fern leaves

Answer: B) C4 leaves

9. CAM plants open stomata mainly during:

A) Noon

B) Morning

C) Night

D) Afternoon

Answer: C) Night

10. The epidermis originates from:

A) Procambium

B) Ground meristem

C) Protoderm

D) Pericycle

Answer: C) Protoderm

11. Guard cells are associated with:

A) Hydathodes

B) Stomata

C) Trichomes

D) Lenticles

Answer: B) Stomata

12. Anisocytic stomata are characterized by:

A) Two subsidiary cells

B) Three unequal subsidiary cells

C) No subsidiary cells

D) Parallel subsidiary cells

Answer: B) Three unequal subsidiary cells

13. Paracytic stomata possess subsidiary cells:

A) Parallel to guard cells

B) Perpendicular to guard cells

C) Circular around guard cells

D) Absent

Answer: A) Parallel to guard cells

14. Diacytic stomata have subsidiary cells:

A) Parallel to pore

B) At right angles to pore

C) Unequal in size

D) Absent

Answer: B) At right angles to pore

15. Trichomes are outgrowths of:

A) Cortex

B) Epidermis

C) Xylem

D) Pith

Answer: B) Epidermis

16. Xylem mainly conducts:

A) Food

B) Hormones

C) Water and minerals

D) Proteins

Answer: C) Water and minerals

17. Phloem transports:

A) Water only

B) Minerals only

C) Organic food materials

D) Oxygen

Answer: C) Organic food materials

18. The main conducting element of angiosperm xylem is:

- A) Sieve tube
- B) Vessel
- C) Companion cell
- D) Cortex

Answer: B) Vessel

19. Companion cells are associated with:

- A) Xylem vessels
- B) Tracheids
- C) Sieve tube elements
- D) Fibres

Answer: C) Sieve tube elements

20. Ultrastructure of xylem and phloem is studied using:

- A) Light microscope
- B) Hand lens
- C) Electron microscope
- D) Compound lens only

Answer: C) Electron microscope

## II. FILL IN THE BLANKS

1. The region of low mitotic activity in the root apex is called the..... **Quiescent center.**

2. The outermost protective tissue of young roots is the .....**Epidermis.**

3. **Root cap**..... protects the delicate apical meristem of the root.

4. The actively dividing tissue in plants is known as .....**Meristematic tissue.**

5. **Shoot apex**..... gives rise to leaves and branches.

6. In C4 plants, bundle sheath cells form the characteristic .....**Kranz anatomy.**

7. **CAM** ..... plants open their stomata mainly during the night.

- 8.The tiny pores present in epidermis for gaseous exchange are called .....**Stomata**.
- 9.**Guard cells** .....regulate the opening and closing of stomata.
- 10.**Trichomes** .....are outgrowths arising from the epidermis.
- 11The arrangement of subsidiary cells around guard cells is used in  
.....**stomatal classification**.
- 12.**Anisocytic stomata** .....are surrounded by three subsidiary cells.
- 13.The conducting tissue responsible for water transport is .....**Xylem**.
- 14.Food conduction in plants takes place through .....**Phloem**.
- 15.Xylem vessels are mainly composed of .....**lignified walls**.
- 16.Companion cells are associated with sieve tubes in .....**phloem**.
- 17.The study of tissue development is called .....**Histogenesis**.
- 18.The shoot apical meristem is responsible for..... **primary growth**.
- 19.The root apex is covered by the..... **root cap**.
- 20.The epidermal cells are usually covered with a waxy layer called..... **cuticle**.

### III.DESRIPTIVE QUESTIONS

1. Structure with reference to c3 and c4 plants
2. Organization of root apex and significance of Quiscent center
3. Structure and classification of Trichomes
4. Kranz and CAM syndrome
5. Ultra structure of Xylem