
	<b>INDIAN SCHOOL AL WADI AL KABIR</b>		
<b>Class: XI</b>	<b>Department: SCIENCE 2022 – 23</b> <b>SUBJECT : BIOLOGY</b>		<b>Date of submission:</b> <b>14.09.2022</b>
<b>Worksheet: 5</b> <b>WITH ANSWERS</b>	<b>UNIT – Structural Organisation in Plants and Animals</b> <b>CHAPTER: Anatomy of flowering plants</b>		<b>Note:</b> <b>A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT</b>		<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

### MULTIPLE CHOICE QUESTIONS

- One of the following is a spherical or oval, dead, simple permanent tissue
  - Sclerenchyma fibres
  - Sclereids
  - Collenchyma
  - Parenchyma
- Which among the following statements are applicable for the vascular bundle of monocot stem?
  - Cambium is present in between xylem and phloem, open condition
  - Cambium is absent in between xylem and phloem, closed condition
  - Xylem and phloem are situated in the same bundles, conjoint condition
  - Xylem and phloem are situated in different bundles, radial condition
  - Both (ii) and (iii)
  - Both (i) and (iii)
  - Both (ii) and (iv)
  - Both (i) and (iv)
- Casparian strips in dicot roots are made up of
  - Cuticle
  - Pectin
  - Suberin
  - Lignin

4. The parenchymatous tissue present between xylem and phloem in dicot roots is known as
- (a) Cambium      (b) Stele      (c) Pericycle      (d) Conjunctive tissue
5. One of the following pairs is known as early wood and late wood:
- (a) Spring wood and autumn wood      (b) Autumn wood and spring wood
- (c) Heart wood and sap wood      (d) Sap wood and heart wood

### **TWO MARKS QUESTIONS**

6. Differentiate between collateral and radial vascular bundle. Draw diagrams
7. Give a brief description about the complex tissue that transports water and minerals
8. Write notes on simple permanent dead tissue
9. What are trichomes and what are their functions?
10. Why are xylem and phloem called complex tissue?

### **THREE MARKS QUESTIONS**

11. Give a comparative account of dicot and monocot roots
12. What is epidermal tissue system? Explain its functions.
13. Answer the following questions with reference to the anatomy of monocot stem:
- (i) How are vascular bundles arranged?
- (ii) How are xylem vessels arranged in each bundle?
- (iii) Are vascular bundles closed ones? What type of tissue they lack?
14. What is periderm and how periderm is formed in dicot stem?
15. Write brief notes on classification of meristems.
16. (a) Distinguish between stomata and lenticels.
- (b) What is the economic use of phloem fibers?
17. Distinguish between:
- (a) Exarch and endarch condition
- (b) Metaxylem and protoxylem
- (c) Collenchyma and parenchyma

## FIVE MARKS QUESTIONS

18. Explain the process of secondary growth in the stem of dicot plants

19. Distinguish between:

- (i) Sieve cell and companion cell
- (ii) Phellem and phelloderm
- (iii) Fascicular cambium and interfascicular cambium
- (iv) Sap wood and heart wood
- (v) Conjoint and radial vascular bundle

20. Distinguish between dicot stem and monocot stem based on their anatomical peculiarities.

21. Draw neat labelled diagrams of different types of vascular bundles in dicot stem and root. Give the differences.

22. Leaf of dicot plant is known as dorsiventral leaf.

- (i) Which part of this leaf is known as mesophyll and how are they differentiated?
- (ii) How this leaf is different from isobilateral leaf?
- (iii) What are bulliform cells?

### Hints/solution

1	b, Sclereids	1
2	a	1
3	c, Suberin	1
4	d, Conjunctive tissue	1
5	a, Spring wood and autumn wood	1
6	collateral – same radius, radial – different radii, diagrams	2
7	explanation of xylem – xylem elements and functions	2
8	notes on sclerenchyma	2

9	epidermal appendages, multicellular, on stem and leaves, function - protection	2
10	Made up of different types of elements, name of elements	2
11	table form – similarities and differences	3
12	components – epidermis, stomata, appendages, cuticle, functions – each component’s functions	3
13	(i) – conjoint and collateral, scattered – explanation, (ii) – endarch, protoxylem lacunae, (iii) – yes – they lack cambium	3
14	periderm – phellum + phellogen + phelloderm; formation of periderm – secondary thickening	3
15	classification – based on position – apical, lateral and intercalary – location, function)	3
16	(a) – stomata – special features, structure, associated with primary structure stem and then on leaves; lenticels – formed during secondary thickening, bark of stem, structure; (b) – economic importance of jute and flax fibres – phloem fibres	3
17	(a) exarch – protoxylem facing towards outside, endarch – protoxylem towards inside, examples; (b) Metaxylem – later formed xylem vessels, protoxylem – first formed xylem vessels, size difference; (c) collenchyma- corners thickened, mechanical tissue, parenchyma – thin walled, storage tissue	3
18	detailed explanation of activity of vascular cambium – formation of cambial ring and its activity; action and formation of cork cambium	5
19	i) Sieve cell - nucleus is absent, transporting element companion cell – associated with sieve tube, nucleus is present, controls sieve cell  (ii) Phellem - cork, outermost part of stem and phelloderm – secondary cortex  (iii) Fascicular cambium – with in vascular bundle, primary and interfascicular cambium – between vascular bundle, secondary	5

	(iv) Sap wood – peripheral, functionally active, light coloured and heart wood – central, dark coloured and resistant to microbial activity  (v) Conjoint – xylem and phloem in same radius and radial vascular bundle - xylem and phloem are in different radii	
20	Differences in epidermal, ground and vascular tissue system, diagrammatic representation of both	5
21	Diagrams of conjoint open (dicot stem), conjoint closed (monocot stem), radial, diarch – tetrarch (dicot root), radial polyarch (monocot root); differences	5
22	i) – ground tissue, differentiated into palisade and spongy – characteristic features of both  ii) – Differences between dicot and monocot leaf  iii)– large, colourless, empty cells on upper epidermis of grass, function)	5

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