
Answer on the following questions:

First question: Write the expressions of the following . (9 degree)

- 1- in many plant species axial and ray parenchyma cells located next to the vessels form outer growth through the pit cavity into the lumen of the vessels.
- 2- Part of the stem following the cortex and with or without pith.
- 3- Lateral meristem whose activity leads to an increase in the thickening of the shoot and root.
- 4- Growth in thickness occurs in distant from apical shoot and apical root.
- 5- Formed as a result of periodical activity of the vascular cambium.
- 6- Transverse wall above and below the pits on tracheids.
- 7- Rod-shaped outgrowth of the tangential wall of tracheids.
- 8- The area of contact between a ray parenchyma cell and a single vertical tracheids.
- 9- Defined as a tissue of living and dead cells that are found external to the secondary phloem.

Second question; Complete the following: (7 degree)

- 1- there are two main types of vessels distributns.....
- 2- There are many types of parenchyma distributions.....,and
- 3- The development of secondary growth is characteristic to and
- 4- Secondary growth in monocots takes place by And
- 5- Growth rings consists of two types of xylem..... and
- 6- The periderm is made up of three tissues....., and.....
- 7- The vascular cambium is made up of two types of cells And

Third question: Compare between: (6 degree)

- 1- Normal and abnormal secondary growth.
- 2- Functional and non-functional secondary phloem.

Fourth question: Check the true statement and correct the false ones of the following: (2 degree)

- 1- The structure of the secondary xylem of the gymnosperms is complex and more homogenous than that of the angiosperms. ().
- 2- The principal difference between angiosperms and gymnosperms is the absence of tracheids. ().

الإجابة النموذجية

إجابة السؤال الأول:

- 1- tyloses.
- 2- stele.
- 3- vascular cambium.
- 4- secondary growth.
- 5- annual ring.
- 6- crassula.
- 7- trabecula.
- 8- cross-field.
- 9- bark.

إجابة السؤال الثاني:

- 1- diffuse-porous and ring-porous.
- 2- Apotracheal and paratracheal parenchyma.
- 3- Some pteridophytes, gymnosperms and angiosperms.
- 4- Primary thickening meristem and diffuse secondary growth.
- 5- Early wood and late wood.
- 6- Phellem, phyllogen and phylloderm.
- 7- Fusiform initial cells and ray initial cells.

إجابة السؤال الثالث:

- 1-
#Normal secondary growth characterized by:
 - a- vascular cambium in a complete smooth ring.
 - b- Vascular cambium in a single ring.
 - c- Vascular cambium lie between secondary xylem internally and secondary phloem externally.
 - d- Activity of vascular cambium is equal in all parts of it.
 - e- Activity of vascular cambium leads to formation of secondary xylem internally and secondary phloem externally.
- #While abnormal secondary growth characterized by:
 - a- vascular cambium in a wavy ring.
 - b- Vascular cambium more than one ring.
 - c- Vascular cambium lie between in some times internally and externally xylem (extraxylary phloem).
 - d- Activity of vascular cambium not equal in all parts where in parts give more amount of secondary xylem and secondary phloem than others parts.
- 2-
* Functional secondary phloem characterized by:
 - a- cells living.

- b- functional.
 - c- cells of its having normal shapes.
 - d- phloem rays in straight line.
- * While non-functional secondary phloem characterize by:
- a- most of it cells non-living.
 - b- non-functional.
 - c- cells of its destroyed.
 - d- phloem rays in wavy form.

إجابة السؤال الرابع:

- 1- simple.
- 2- Vessels.