



**Benha University.**  
**Faculty of Agriculture**  
**Agriculture Bot. Dpt.**

## **Model Answer for Botany Exam**

**Exam of: Agric. Botany                      Code number:                      Time: 2 hours**

**I<sup>st</sup> semester Final exam, 2014-2015    Distinguished Biotechnology & Food safety programs**

**N.B.: Exam is in 3 pages**

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### **I-Choose the correct answer:**

**(12 points)**

1)-Epidermis is a layer which consists of:

c-One cell in thickness

2)-Endodermis is a tissue belonging to:

d-Cortex

3)-Radial vascular bundles are present in:

b- Roots

4)-Exodermis is usually formed in primary tissues of:

c- Monocot roots

5) In the open collateral vascular bundles cambium exists:

b- Between xylem tissue and the outer phloem

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### **II-Mark with (√) or (×) with Short comments:**

**(12 points)**

1)-Epidermis is covered with a cuticle layer in leaves and roots

(  ) .

In stems and leaves only

2)-Open collateral vascular bundles are common in leaves and stems of dicots

(  ) .

In dicot stems only

3)-phloem and xylem tissues are functioning together in carrying photosynthates

from roots to leaves and vice-versa ( x ).

Phloem only the tissue is functioning in carrying photosynthates from leaves to different plant parts

4)-Next to the secondary growth there is no living connection between different plant organs ( x ).

There is living connection

5-After double fertilization each of zygote and endospermic cells are diploids (x).

Zygote only (2 N) while endospermic tissue is triploide (3 N)

**III -Diagram of a typical complete flower displaying all of the basic floral structures:**

**Rewrite all data are explaining those structures** (12 points)

1-pedicel 2- receptacle 3- sepal 4-petal 5-filament 6-Anther 7- stamen

8- style 9- stigma 10-pollen grains 11-pollen tube 12-lobe

13-pollen chamber 14-exine 15- intine 16-generative nucleus 17- tube nucleus

18-pollen tube 19-ovary wall 20-sperm nuclei 21-tube nucleus (vegetative)

22- Antipodal cells 23-matuer embryo sac. 24-two polar nuclei (primary endosperm nuclei)

25-nucellus 26-egg nucleus 27-integuments 28-micropyle

29-stalk of ovule 30-placenta

**IV-Answer only one of the following: (with drawing whenever it is possible):** (12 points)

1)-Define the secondary growth and write all steps in which they take place?

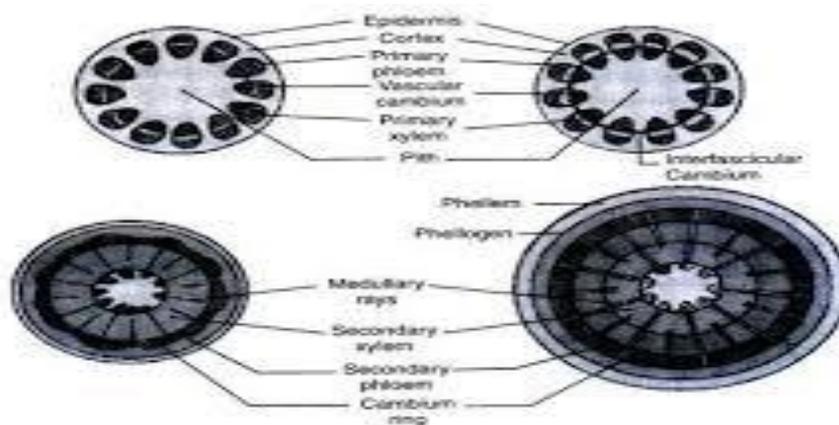
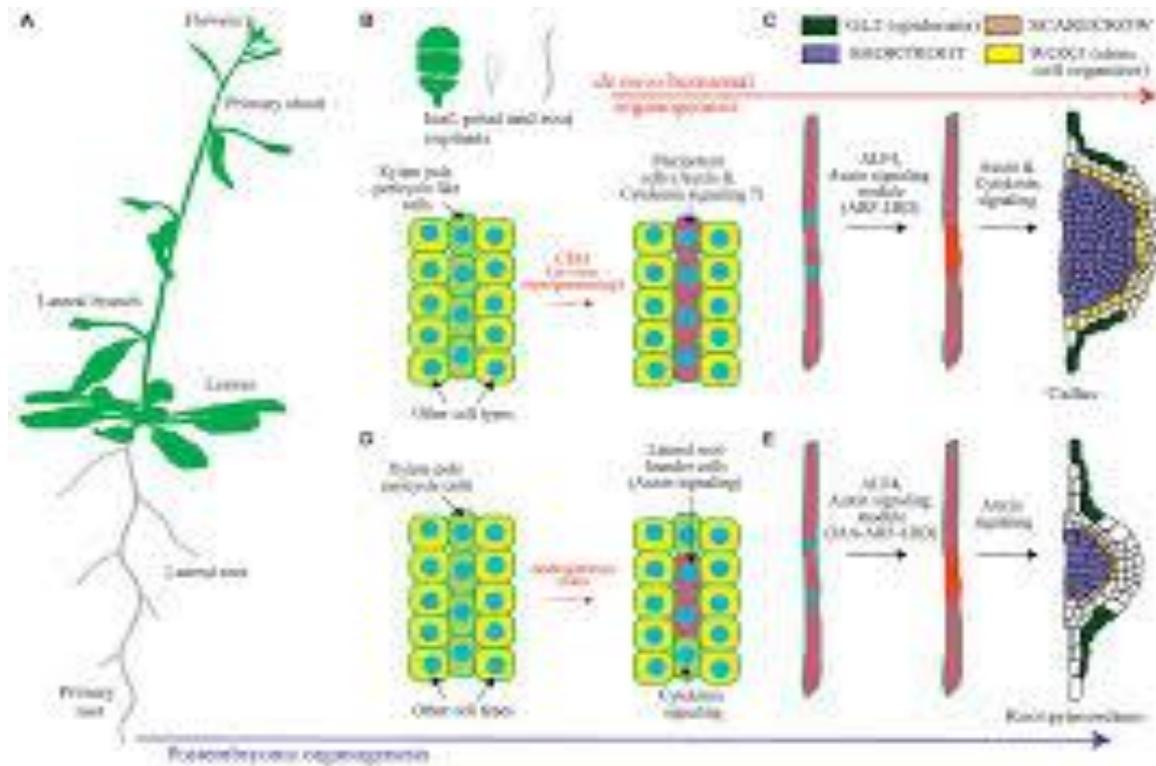
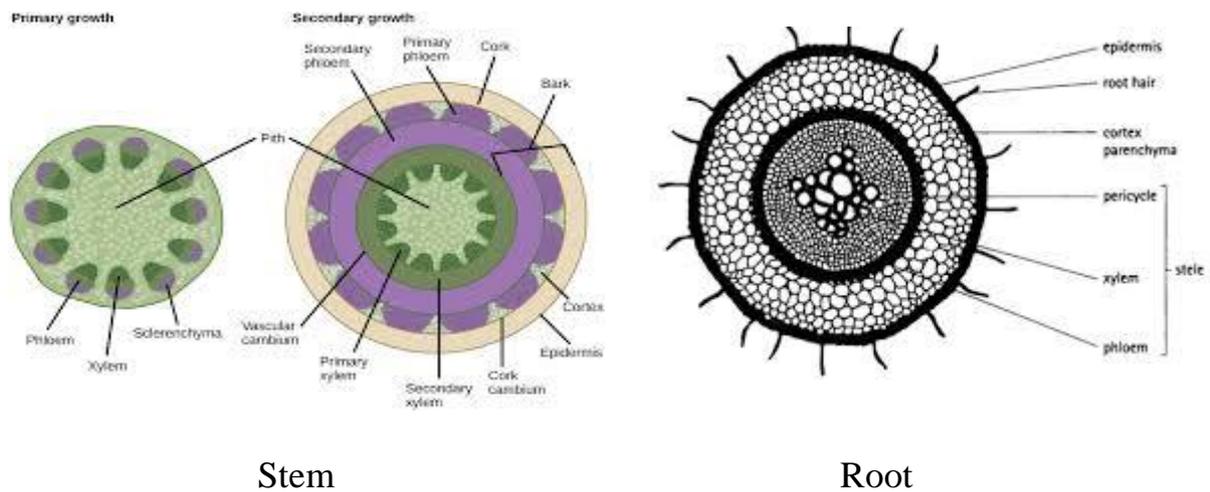


Fig. 13.7. Secondary growth in a dicot stem (diagrammatic) stages in transverse views

2)-Describe different steps of lateral root initiation?



3)-compare between the primary structure in roots and stems of dicots?



**V-Define only five of the following:**

**(12 points)**

- 1- **Tylosis:-** are bladder like in growth that produce or form into the vessels or trachides there rats in their walls, from xylem parenchyma and medullary ray cells, in contact with

them. Inside the lumen of the vessel or tracheids these protrusions enlarge and become pershaed or spherical. A number of tylosis are formed different alls and may block the lumen of the vessel.

2- **Casparin Strip:** a suberin layer in form of a strip is deposited over the outire inner surface of the endodermal cell (peripheral and periclinal walls) and called the casparian strip. So, the endodermis cells are considered as a final control for crossing water and dissolving elements from outside to inside.

3- **spring and summer woods:** Cambial activity is being repeated two times first in spring and early summer while the second occurs in last summer and start of automn, therefore the growth ring of one year can be divide into two rings one expressing the growth during spring and early summer since, its wood called spring or early wood, while the other called summer or late wood.

4- **Sap and heart woods:** in those trees with long life, i.e., tree is aged several years. So, many rings of secondary xylem are being produced. In such cases, the oldest layers in central of the stele, it could be clearly characterized these regions since its xylem lost its function of conductivity because vessels are filled with Tylosis with pigments and with many resins.

5-**Annual growth rings:** low temperature during several months of the year as in most Europe nations, the cambium is being active only in the few months of summer season. So, a very distinguish ring of secondary tissues produced in each growth season for each year. Therefore, in wood trees several growth rings equal to the age of the tree will be more evident.

6- **Types of plastids:** chromo plastids- leuco plastids- chloro plastids.

7-**pollination and Fertilization:** pollination is the transport of sutalle pollen grains in sutalle time from the anther of a flower to sutalle stigma of flower on the same plant or on other plant.

**Fertilization** one male sperm fertile the egg cell to form zygote and the second sperm fertile the primary endosperm cell to form the endospermic tissue.

8-**Simple and complex tissues:** simple tissue consists of one type of cells as in epidermis layer.**Complex tissue** consists of more than one type of cells as in xylem tissue.

9- **Essential and non-essential whorls:** non essential whorls are calyx (its unit is sepal) and corolla (its unit is petal)

**Essential** whorls are androecium (its unit is stamen) and Gymnoecium (its unit is carpel).

10- **Egg and Ovule:****Egg** is the female gamete (which arise to zygote) present in the embryo sac.

**Ovule** (is lies in the center of ovary and surround the emberyo sac.) in which arise to the seed after fertilization.

*Good luck*

**Prof.Dr. Said Ali El-Desouky**