**ANNAI VAILANKANNI ARTS AND SCIENCE COLLEGE**

**(BISHOP SUNDARAM CAMPUS)**

**THANJAVUR – 613 007.**

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| **SEMESTER:** | **CLASS:** | **SUBJECT:** |
| **IV** | **II - B.Sc BOTANY** | **ANATOMY AND EMBRYOLOGY** |
| **PREPARED BY:** | **DR.M. BASTIN** |

**Answer in all questions 10X2=20**

1. **Define anatomy**

Plant anatomy is the study of the shape, structure, and size of plants. As plant anatomy focuses on the structural parts and systems that make up a plant.

1. **Define tissue**

Plant tissue is a collection of similar cells performing an organized function for the plant. Each plant tissue is specialized for a unique purpose, and can be combined with other tissues to create organs such as leaves, flowers, stems and roots.

1. **What is meristem?**

A meristem is the tissue in most plants containing undifferentiated cells, found in zones of the plant where growth can take place. Meristematic cells give rise to various organs of a plant and are responsible for growth.

1. **What is differentiation?**

Differentiation in plants refers to the processes by which distinct cell types arise from precursor cells and become different from each other.

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Differentiation in plants refers to the processes by which distinct cell types arise from precursor cells and become different from each other. Other cells such as the water-conducting vessel elements undergo cell death as part of their differentiation pathway and thus can never transdifferentiate to another cell type.

1. **Define apical cell**

An apical cell is a cell that divides repeatedly to form new cells. An apical cell has a front face and up to three rear faces. All cell division takes place along the rear faces and never along the front face.

1. **What is apical meristem?**

The apical meristem is the growth region in plants found within the root tips and the tips of the new shoots and leaves.

1. **What is cork cambium?**

Tissue in the stem of a plant that gives rise to cork on its outer surface and a layer of cells containing chlorophyll on its inner.

1. **Explain the mitotic cell division**

Mitosis cell division is the type of cell division cycle in which chromosomes in a cell nucleus are separated into two identical sets of chromosomes, each in its own nucleus.

1. **Explain the mitosis cell division**

The result of mitotic cell division is two daughter cells which are genetically identical to both each other and the parent cell.

1. **Explain the intercalary meristem?**

Intercalary meristem is located at internodes or stem regions between the places at which leaves attach, and at leaf bases, especially of certain monocotyledons. The cells of the intercalary mersitem are active and continuously form a number of new cells.

1. **What is histogen theory?**

A growing point (as of a stem or root) consists of three histogens each of which gives rise to a different tissue see dermatogen, periblem, plerome.

1. **What is the concept of apical meristem?**

The apical meristem is the growth region in plants found within the root tips and the tips of the new shoots and leaves.

1. **Explain the procambium.**

The procambium is a meristematic tissue concerned with providing the primary tissues of the vascular system; the cambium proper is the continuous cylinder of meristematic cells responsible for producing the new vascular tissues in mature stems and roots.

1. **What is phellogen?**

Phellogen is defined as the meristematic cell layer responsible for the development of the periderm. Cells that grow inwards from there are termed phelloderm, and cells that develop outwards are termed phellem or cork (note similarity with vascular cambium).

1. **What is Intrafascicular cambium?**

Intrafascicular cambium is present in the vascular bundles of dicot stems. It is present in between primary xylem and primary phloem. It is a primary meristem as it is derived from embryonic meristems. So intrafascicular cambium is a primary meristem and iterfascicular cambium is a secondary meristem.

1. **Define lateral meristem**

A meristem is arranged parallel to the sides of an organ and that is responsible for increase in diameter of the organ.