

## CHAPTER -1 TISSUES

### I. Differentiate between the following

#### 1. Tendons and Ligaments

<b>Tendon</b>	<b>Ligaments</b>
It is tough and inelastic	It is strong and elastic
It help in attaching muscles to bones	It help in connecting bones to bones at joints

#### 2. Lymph and blood

<b>Lymph</b>	<b>Blood</b>
It is a clear transparent fluid like blood	Red in colour due to the presence of haemoglobin ( red pigment )
It consist of plasma with lesser quantity of protein and less number of WBC	It consists of plasma WBC, RBC and platelets.

#### 3. Areolar and adipose tissue

<b>Areolar</b>	<b>Adipose</b>
It is located around the outer covering of nerves, between skin and muscles pleural and pericardial sacs.	It is located beneath the skin, eyes, around kidneys etc.
Areolar is a connective tissue which helps in binding the organs together.	It provides insulation to the body and helps in conserving energy.

#### 4. Xylem and phloem

<b>Xylem</b>	<b>Phloem</b>
It is a water conducting tissue	It is a food conducting tissue
It is composed of 4 different type of cells tracheids, xylem vessels, xylem parenchyma and xylem sclerenchyma	Composed of sieve tubes, companion cells, phloem parenchyma, phloem fibres.

#### 5. Striated and unstrained muscles

<b>Striated</b>	<b>Unstriated</b>
Striated muscles are called as voluntary muscles	Unstriated muscles are called as involuntary muscles
They are present in the legs, arms, neck and back.	They are present in the internal organs such as blood vessels, alimentary canal, uterus and urinary bladder.

## 6. Bones and cartilage

Bones	Cartilage
It is a strong and non flexible connective tissue	It is a flexible connective tissue
It provides a definite structure and shape to the body.	It fills the gaps between the bones and serves as a cushion to absorb jerks during body movement.

### II. Name the tissues found in the following:

1. Root tip – Apical Meristem
2. Animal skin – epithelial
3. Bark of the stem – lateral Meristem (Cork cambium)
4. Wall of heart – Cardiac muscles
5. Outer region of ovary – Cuboidal epithelium
6. Blood – connective tissue

### III. Short answer questions

#### A. Give reason

1. **Apical meristem is present at the tip of the shoot to give rise to organs like leaves and flowers.** They help the plant to attain the growth in their length that is primary growth.
2. **Blood act as a transport vehicle in animals** because it helps in transporting nutrients, respiratory gases, and waste.
3. **Adipose tissue is present around the kidneys because it** helps to protect the kidney and give cushion effect.
4. **Bones play a very important role in human body by** providing definite shape and structure act as armour and protect the organs such as spinal cord, brain, lungs and heart.
5. **Parenchyma is generally located in the soft regions of plants** to maintain the shape of the plant with the help of its turgid cells and also to carry out photosynthesis in leaves and green stems.

#### B. Answer the following questions:

##### 1. How do you classify meristematic tissue?

Meristematic tissues are classified in to apical meristem, Intercalary meristem and lateral meristem. **Apical meristem** located at the tip of the shoot and the tip of the root. They help the plants to attain growth in their length, that is ,primary growth . **Lateral meristem** helps to attain growth in grith, that is, secondary growth. **Intercalary meristems** are meant for the growth of stems and leaves.

##### 2. Describe the components of xylem in brief.

The components of xylem are tracheid, vessels or tracheae, xylem parenchyma and xylem sclerenchyma.

Xylem parenchyma is the only living tissue.

The remaining xylem elements are dead with thick lignified walls.

Xylem vessels are the most significant cells which form tube like structures.

Tracheids are elongated cells with tapering ends and play an important role in the conduction of water.

### **3. Write the functions of the following systems in our body.**

a. Digestive system – It breaks down and absorbs nutrients from the food and liquids we consume to use for important things like energy, growth and repairing cells

b. Respiratory system – Breathing and gaseous exchange.

c. Nervous system - The **nervous system** is responsible for coordinating the actions and the transmission of sensory information to different parts of an animal's body.

### **4. Describe the various types of cells present in phloem.**

Sieve tubes, companion cells, phloem parenchyma and phloem fibres are the four types of cells in phloem. All the phloem cells are living except phloem fibres.

### **5. Write any two characteristics of cardiac muscle.**

Cardiac muscles are involuntary, striated, branched, and single nucleated.

### **6. What are the functions of columnar epithelium?**

Absorption of food and secretion of various juices from glands present in the body.

### **7. What is the nature and structure of sclerenchyma?**

Cells are dead and have no protoplasm. Cell wall is thick and it is made up of lignin. There are no intercellular spaces between the cells.

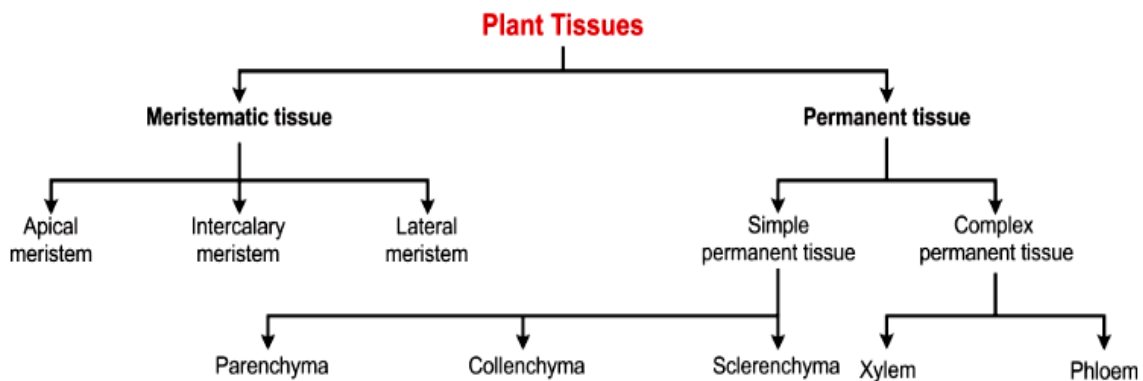
## **C. Challenge questions**

**Is blood considered as a tissue if yes then why the cells are present in blood not a similar in structure or function?**

Blood is both a tissue and a fluid. It is a tissue because it is a collection of similar specialized cells that serve particular functions. These cells are suspended in a liquid matrix (plasma), which makes the blood a fluid.

**WORK SHEET - ANSWER KEY**

1. Complete the flow chart given below.



2. Observe the image given below and answer to the following questions:

a) What type of plant tissue is showing here?

**Ans :** Meristematic tissues

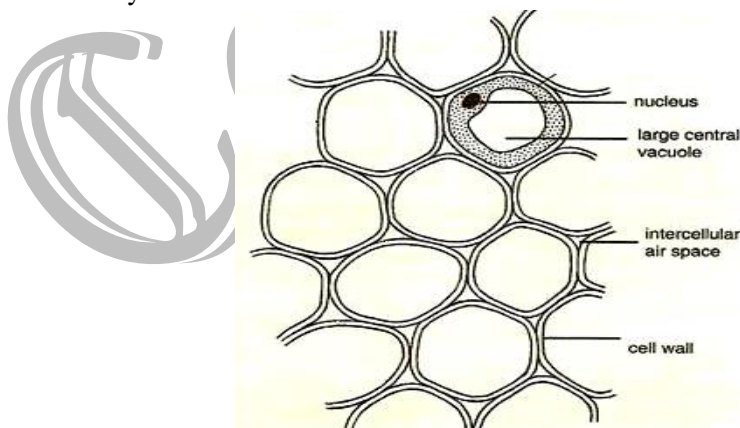
b) Label A, B, C.

**Ans:** A- Apical meristem, B- Intercalary meristem, C- Lateral meristem

**Ground Tissues:**

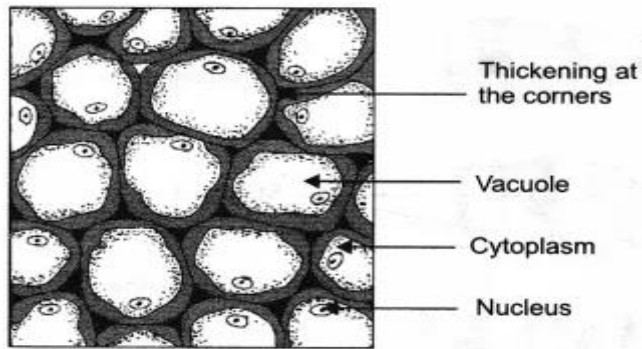
i) Identify the tissue depicted in the figure and label the parts 1 to 4.

**Ans :** Parenchyma



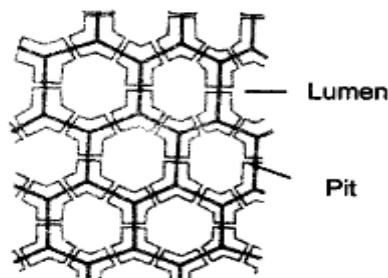
ii) Identify the tissue depicted in the figure and label the parts 1 to 4.

**Ans:** Collenchyma



iii) Identify the tissue image given below and label the 1 & 2.

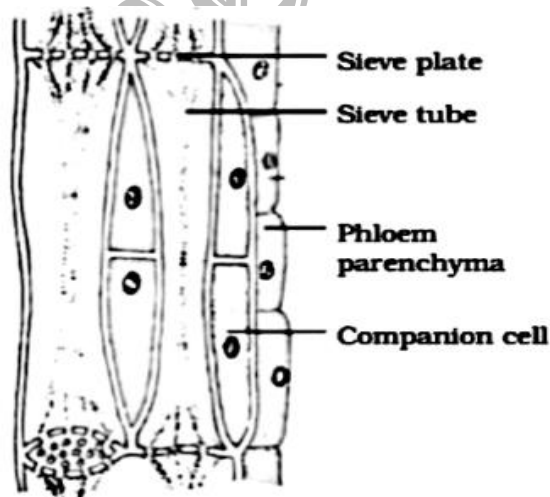
**Ans:** Sclerenchyma



**Complex Tissues:**

Identify the tissue given below and label the parts A, B, C, D.

**Ans:** Phloem



## ANIMAL TISSUES

### Epithelial Tissue

1. Write the location and functions of epithelial tissue.

**Ans:** a ) **Cuboidal epithelium** : Located in the outer region of the ovary and ducts of glands such as thyroid and pancreas, lining of kidney tubules, helps in excretion in kidney tubules ,absorption and secretion of the fluid.

b) **Squamous epithelium** : Located in the lining of heart, blood vessels, air sacs of lungs, Protects various organs from mechanical injury

c) **Columnar epithelium**: Located in the lining of various glands and gastro intestinal tracts, its functions are absorption of food and secretion of juices from various glands present in the body.

d) **Stratified epithelium**: Located in the skin and mouth and its function is to protect the underlying tissues.

e) **Ciliated epithelium** : Located in the respiratory tract, nephrons and oviducts in kidney, its function is to move the cilia back and forth to help move small particles.

### Connective Tissues

1. Write the location and function a, b and c.

**Ans: a) Adipose tissue:** Located around the kidneys ,beneath the kidneys, heart and eyes, helps in conserving body heat, energy storage , gives a cushioning effect to many organs.

**b) Dense irregular connective tissue:** Located around the spleen ,dermis of skin, fibrous sheath around the bones ,cartilage, muscles and nerves. its gives protection to organs from physical injury and act as a protective capsule around many organs.

**c) Areolar connective tissue** Located beneath the epithelia, outer covering of nerves, blood vessels, oesophagus and other organs. It helps in binding organs and holds the internal organs at their proper positions.

2. Write the location and function of ligament and tendon.

**Ans: Ligament:** Located between bones in a joint, helps in binding bones together and provide stability at joints.

**Tendon:** Located between the muscle and bone, it helps in attaching the muscle to bones and helps in transferring force from the muscles to the bone.

3. Identify and name the tissue and write its function.

**Ans:** Blood tissue – Helps in regulating the temperature of the body, transport nutrients, respiratory gases and wastes, maintains water balance in the body.

### **Bones and Cartilage**

1.a) Identify the diagram given below and write the name of the tissue and the cells present in it.

**Ans:** Bone tissue - Osteocytes

b) Name the bones which protects the brain ,lungs and heart.

**Ans:** Brain – Skull , Lungs and Heart – Rib cage.

2. a)What are chondrocytes?

**Ans:** The cartilage cells present in the matrix of the cartilage are called as chondrocytes.

b) Write the location of cartilages in human body.

**Ans:** Location – Tip of nose and ears.

c) How many bones are there in adult human body?

**Ans:** 206 bones

### **Muscular and Nervous Tissue**

1. Identify the tissues given below and tabulate the difference between them.

<b>Striated muscle</b>	<b>Smooth muscle</b>	<b>Cardiac muscle</b>
1.They are voluntary	They are involuntary	They are involuntary
2. They are long and cylindrical, non –tapering and unbranched.	They are spindle shaped	They are cylindrical and branched.
3. They are attached to skeleton and helps in its movement.	They control the movement of the substances.	They help in pumping the blood.
4.Found in legs and neck	Found in uterus and blood vessels	Found in the heart

2 .a) Name the cell given below and label the parts.

**Ans:** 1- Dendrites, 2 – Cyton, 3 – Axon, 4 – Axon terminal

b) Write the function of nervous tissue.

**Ans:** Regulates and control body functions, generates and transmits nerve impulses.

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