



STEPPING STONE  
SCHOOL (HIGH)

**CLASS :7**

**Subject: biology**

**Topic: Answers to worksheets**

**Dated: 27/04/2020, 28/04/2020, 1/05/2020, 11/05/2020, 18/05/2020, 20/05/2020**

**Date :27/04 2020**

***Answers to Worksheet No.:1***

**Q1) Answer in one word:-**

1. Sclerenchyma
2. Tissue
3. Parenchyma
4. Apical Meristematic
5. Intercalary Meristem

**Q2) Answer the following:-**

**1) Four characteristics of meristematic tissue:-**

1. It is composed of small, spherical and undifferentiated cells.
2. Cells grow and divide actively.
3. Cells are living in nature.
4. It provides growth to the plant.

**2). There are three types of simple permanent tissue**

**Parenchyma** , **collenchyma** and **sclerenchyma**

The **structural** difference between them are the following:-

<b>Parenchyma</b>	<b>collenchyma</b>	<b>Sclerenchyma</b>
1.It is round or polygonal, thin-walled	Elongated cells thickened at the corner due to	Long narrow cells thickened at the corners

living cells.	deposition of <b>cellulose</b> and <b>pectin</b>	due to deposition of <b>lignin</b>
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### 3) Differentiate between the following:-

- i) Xylem and phloem
- ii) Meristematic tissue and permanent tissue

<b>Xylem</b>	<b>Phloem</b>
1. Conducts water and dissolved minerals from the roots to the aerial parts of the plant.	1. Conducts food prepared by the leaves to other parts of the plant.
2. It consists of tracheids, vessels, xylem parenchyma and xylem fibre	2. It consists of sieve tubes, companion cells, phloem fibres and phloem parenchyma
3. Except xylem parenchyma all the xylem components are made up of dead cells.	3. Except phloem fibres all the phloem components are living in nature.

<b>Meristematic tissue</b>	<b>Permanent tissue</b>
1. It is composed of small, spherical and undifferentiated cells.	1. It is composed of large, differentiated cells which are of different shapes.
2. Vacuoles are absent.	2. Have large, centrally located vacuoles
3. <b>Cells grow and divide actively</b>	3. Cells do not divide normally.
4. <b>It provides growth to the plant.</b>	4. It provides protection, support, and conduction to the plant.
5. <b>Cells are living in nature</b>	5. Cells may be living or dead.

**Date:** 29/04/2020

### *Answers to Worksheet No.:2*

**Ans.1)** Collenchyma

**Ans.2)** Lignin

**Ans.3)** Sometimes in parenchyma tissue such as mesophyll tissue in leaves chloroplast is present and hence they take part in photosynthesis and are then known as chlorenchyma

**Ans.4)**

	<b>Location</b>	<b>Function</b>
Parenchyma	It is found in soft parts of plant such as cortex of roots, ground tissue of stems and mesophyll tissue of leaves.	Storage of food and provide temporary support to the plant.
Collenchyma	It is found in the form of	Provides mechanical

	bands in dicot stems, petioles of leaves and flower stalks.	strength and support to the growing parts of plant and sometimes the cells store food prepared by the plant.
Sclerenchyma	It is found in hard outer covering of nuts and seeds. It is also found in stems and veins of leaves.	This tissue provides mechanical strength, rigidity and toughness to different parts of plant.

**Ans.5)**

Parenchyma Tissue	Sclerenchyma Tissue
1. Cells are living in nature.	1. Made up of living cells.
2. Round or polygonal in shape	2. Mainly long, narrow
3. Cell wall is thin and made up of cellulose.	3. Cell wall is thick due to deposition of lignin.
4. Stores food and perform photosynthesis.	4. Provides rigidity and toughness to different parts of the plant.

### *Answers to Worksheet No.:3*

**Date: 01/05/2020**

Ans 1) Vascular tissues are conducting tissues whose function is to conduct water and food materials to the different parts of the plant. Example: - **Xylem** and **Phloem**.

Ans 2) The conducting elements of xylem are **tracheids, vessels, xylem parenchyma** and **xylem fibres**.

The conducting elements of phloem are **sieve tubes, companion cells, and phloem parenchyma** and **phloem fibres**.

Ans 3) Xylem parenchyma is made up of *living cells*.

Ans 4) Phloem fibres are made up of *dead cells*.

Ans 5)

Simple Permanent Tissue	Complex Permanent Tissue
• This tissue consists of only one	• This tissue consists of different

type of cells.	types of cells.
<ul style="list-style-type: none"> <li>• <b>The cells of simple tissue are actively dividing in nature.</b></li> </ul>	<ul style="list-style-type: none"> <li>• The cells of complex tissue are dead in nature.</li> </ul>
<ul style="list-style-type: none"> <li>• They are found throughout the plant body. Example: - epidermis, collenchyma, etc</li> </ul>	<ul style="list-style-type: none"> <li>• The complex tissues have restricted presence. Example: - xylem and phloem are found only in vascular bundles of the plant.</li> </ul>

**Date: 11/05/2020**

**Answers to Worksheet No.:4**

**Q1) Give one word for the following:-**

- Lignin
- Tissue
- Sclerenchyma
- Apical meristem
- Phloem

**Q2) State if the following are true or false. Correct the false statement.**

- TRUE
- FALSE (*Meristematic tissues have actively dividing cells*)
- FALSE (*Permanent tissues arise from meristematic tissues*)
- TRUE
- TRUE

**Q3) Choose the odd one out and give scientific reasons.**

- **Xylem is the odd one out.** It is a complex permanent tissue whereas others are simple permanent tissues.
- **Xylem fibres is the odd one out.** It is composed of dead cells whereas others are composed of living cells.
- **Collenchyma is the odd one out.** It is a simple permanent tissue whereas others are components of complex permanent tissue.
- **Epidermis is the odd one out** because it is a protective tissue whereas others are types of meristematic tissue.
- **Meristematic is the odd one out**, because others are simple permanent tissue.

**Q4) Match the following:-**

1. Tissues have actively dividing cells.	a) <i>Meristematic</i>
2. Outermost covering of plant parts	b) <i>Epidermis</i>
3. Xylem	c) <i>Complex permanent tissue</i>
4. Lignin deposits are found in	d) <i>Sclerenchyma</i>
5. A spongy plant tissue that takes part in photosynthesis.	e) <i>Chlorenchyma</i>

**Q5) Answer the following:-**

Ans 1) The vascular tissues of plant are *xylem* and *phloem*.

Ans 2) The different types of meristematic tissue in plant are: -

- *Apical Meristem*
- *Lateral Meristem*
- *Intercalary Meristem*

Ans 3) Permanent tissue develops from the new cells formed by the division of meristematic tissue.

The special feature about them is that these tissues have lost their power of division and remain the same throughout their lives.

Ans 4) Epidermis is called as protective covering of plant because it is the outermost covering of various plant parts.

Ans 5) The different types of simple permanent tissues are parenchyma, collenchyma and sclerenchyma

- ***Chlorenchyma*** – takes part in photosynthesis
- ***Sclerenchyma*** – gives roughness and rigidity to different parts of the plant.
- ***Collenchyma*** – flexible and elastic in nature

Ans 6) Complex permanent tissues are conducting tissues such as xylem and phloem. They are called so because they are made up of more than one type of cells which perform together as a unit.

**Date: 18/05/2020**

***Answers to Worksheet No.:5***

Q1) Answer in one word for the following:-

- ADIPOSE
- EPITHELIAL
- EPITHELIAL
- AREOLAR
- ADIPOSE

Q2) Answer the following questions:-

Ans 1) Epithelial tissues are found in *the outer layer of the skin, inner lining of the mouth* and organs such as *oesophagus, stomach, intestine and lungs*.

Ans 2) The different types of epithelial tissues are: -

- Squamous epithelium
- Cuboidal epithelium
- Columnar epithelium

Ans 3) Connective tissue proper is a type of connective tissue which supports the various body parts. It fills up the space between the organs. It connects a bone to another bone and a muscle to a bone.

On the basis of their structure and function, they are further divided into two types: -

- Areolar
- Adipose

Ans 4) The functions of areolar tissue are: -

- *It supports and builds a wide variety of body structures.*
- *It binds the skin with muscles, attaches blood vessel to the surrounding tissues*

Ans 5) The specific locations of adipose tissue are

- *Subcutaneous layer of the skin*
- *Around the heart*
- *Around the kidneys*
- *Padding around the joints*

Ans 6) *Differences between areolar tissue and adipose tissue*

Areolar tissues	Adipose tissues
1. These are the simple and most widely distributed connective tissues. They form a continuous layer beneath the skin.	1. These are the loose connective tissues primarily located beneath the skin.
2. These tissues build a wide variety of body structures.	2. These tissues provide insulation to the body by forming a thick layer of fat beneath the skin.
3. These tissues bind the skin with muscles.	3. These tissues act as an energy source. Whenever, our body needs energy, fat stored in them gets converted to carbohydrates and releases energy.

**Date:** 20/05/2020

**Answers to Worksheet No.:6**

**Q1) give one word for the following:-**

- *LIGAMENT*
- *RED BLOOD CELLS*
- *MATRIX*
- *ELASTIN*
- *TENDON*
- *COLLAGEN*

**Q2) answer the following questions:-**

Ans 1) Bone is an example of connective tissue because it provides support to the body and form the internal skeleton of all vertebrates.

Ans 2) The bones make up the framework of our body.

Ans 3) Cartilage is a non-porous, translucent, soft elastic tissue without blood vessels and nerves. Being highly elastic and break-resistant they prevent the bones from shocks. They are found at the tips of bones and help in reducing friction between them.

Ans 4) Ligaments strengthen the joint and permit normal movement but when ligaments get overstretched, sprain is caused.

Ans 5) **Blood**: - It is composed of both the liquid part and the cellular part. The liquid part consists of straw – coloured fluid called **plasma**. The cellular part is composed of red blood cells (R.B.C), white blood cells (W.B.C) the platelets.

<b>Red Blood Cells</b>	<b>White Blood Cells</b>	<b>Platelets</b>
1. These cells are disc-shaped	1. These are irregular in shape.	1. These are very minute spindle- shaped bodies
2. They do not have nucleus.	2. Have one or more nucleus.	2. Do not have nucleus.
3. They carry oxygen and carbon dioxide to and from different parts of the body.	3. They protect the body against infection.	3. They help in clotting of blood at the site of injury

Ans 6) Bone is a hard, porous tissue which has a good supply of blood vessels and nerves. The bone cells are known as **osteocytes** and are made up of inorganic salts of calcium and phosphorous. These salts make the bones hard. The structure of bone is described below:-

- **Haversian canals**:- It is a central canal around which the matrix is arranged in a layer of concentric rings. These canals surround blood vessels and nerves throughout and facilitate communication between bone cells.
- **Lacunae**:- It is a fluid - filled space within which the bone cells osteocytes are present.
- **Canaliculi**:- These are network of fine canals through which bone cells receive food and oxygen and eliminate their waste products.
- **Collagen fibres**:- It is a type of protein fibres which give resistance to the bone.

**Functions:-**

- Bones form the framework of the body.
- They protect some vital organs such as heart, brain and spinal nerves.

Ans 7) i) Difference between bone and cartilage

<b>BONE</b>	<b>CARTILAGE</b>
▪ It is a hard, porous tissue.	▪ It is a soft, non-porous tissue.

▪ It is non-flexible in nature.	▪ It is flexible in nature.
▪ Blood vessels are present.	▪ Blood vessels are absent.
▪ Bone cells are known as osteocytes.	▪ Cartilage forming cells are known as chondrocytes.
▪ It forms the framework of the body.	▪ It provides support and flexibility to the body.

iii) Difference between tendon and ligament

<b>TENDON</b>	<b>LIGAMENT</b>
▪ It is inelastic in nature.	▪ It is highly elastic in nature.
▪ It joins muscles to bones.	▪ It joins bones to bones.
▪ It is made up of white fibres of collagen.	▪ It is made up of yellow fibres of elastin.