

Chapter: 17

Q.1 Name the following

4

- 1** Name Tissue responsible for increasing height of plants.

Ans Apical meristem

- 2** Name the Tissue joining muscles and bones.

Ans Tendons

- 3** Name the Tissue lining inner surface of mouth.

Ans Squamous epithelium

- 4** Name the Tissue responsible for increasing girth of stem.

Ans Lateral meristem

Q.2 Write Short Notes

10

- 1** Xylem.

Ans i. Xylem is a type of complex permanent tissue.

ii. Presence of thick-walled dead cells is the characteristic feature of Xylem.

iii. It consists of following types of cells: Tracheids, vessels and xylem fibres-dead cells Xylem parenchyma-living cells.

iv. It forms a structure like interconnected tubes and functions to conduct water and minerals only in upward direction.

- 2** Striated muscles.

Ans i. Muscle cells are long, cylindrical, multinucleate and have no branches.

ii. Structure: There are alternate dark and light bands on these muscles as they are attached to bones, they are also called skeletal muscles.

iii. They move as per our will, hence they are called voluntary muscles.

iv. Function: These muscles bring about movements of arms and legs, running, speaking, etc.

- 3** Genetic engineering

Ans 1. The techniques of bringing about improvements in living organisms by artificial genetic changes is called as Genetic engineering.

2. In agriculture, it is used in the production of cash crops, improvement in varieties of cash crops, increase in abilities of plants to withstand environmental stresses etc.

3. In medicine, it is used for vaccine production, early diagnosis of congenital diseases, organ transplant, cancer research, production of artificial skin, cartilage, etc.

- 4** Meristematic tissue.

Ans i. As meristematic tissue is present in specific parts of a plant, growth occurs in those parts only.

ii. Cells of meristematic tissue contain thick cytoplasm, a conspicuous nucleus and a thin cell wall and are compactly packed together.

iii. Vacuoles are usually absent in these cells. These cells are highly active. To bring about plant growth is the main function of meristematic tissue.

iv. According to the location, meristematic tissue is of three types as given below.

a. Apical meristem : At the tip of the root and stem

b. Intercalary meristem : At the base of the petiole of leaves and of branches.

c. Lateral meristem : Lateral sides of root and stem

5 Agro-complementary business.

- Ans** i. It includes following - Animal husbandry, Poultry farming, Sericulture.
ii. In India, animal husbandry is practised for milk production and for using the cattle as help in farming operations.
iii. Rearing of egg and meat yielding chickens is called poultry farming.
iv. Silkworms (moths) are reared for production of silk. Bombyx mori is the most commonly used variety for this purpose.

Q.3 **Attempt the following.**

2

1 Which two main techniques are used in biotechnology? Why?

- Ans** 1. Two main techniques used in biotechnology are genetic engineering and tissue culture.
2. These techniques are use for bringing improvements in living organisms by artificial genetic changes and by hybridization for the welfare of human beings.

Q.4 **Distinguish between**

2

1 Simple tissues or Complex tissues

Simple tissues		Complex tissues
i.	They are made up of only one type of cells.	They are made up of more than one types of cells.
ii.	Found in all plants and animals.	Found in higher plants and animals.
iii.	They usually perform the function of division.	They usually perform complex functions like translocation in plants and circulation, excretion, etc. in animals.
iv.	Example Meristematic tissue in plants, Epithelial tissue in animals.	Example Conducting tissues in plants, Connective and nervous tissue in animals.

Q.5 **Give scientific reasons**

2

1 Rearing of sheep is a livestock.

- Ans** 1. Livestock is defined as keeping farm animals and raising them for profit or for use.
2. Sheep are raised by the people in order to get meat, milk & wool from them.
Hence, Rearing of sheep is a livestock.

Q.6 **Answer the following**

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- 1** Each of the following statements is wrong. Rewrite them correctly by changing either one or two words.
a. Simple squamous epithelium is present in respiratory tract.
b. Glandular epithelium is present in kidneys.
c. Chlorenchyma helps the plant to float in water.

- Ans** a. Ciliated epithelium is present in respiratory tract.
b. Cuboidal epithelium is present in kidneys.
c. Aerenchyma helps the plant to float in water.

2 Define the term tissue and explain the concept of tissue culture.

- Ans** A group of cells having the same origin, same structure and same function is called 'tissue'.

Tissue culture:

1. 'Ex vivo growth of cells or tissues in an aseptic and nutrient-rich medium' is called tissue culture.
2. Nowadays, a complete organism can be developed from a single cell or from tissue with help of the tissue culture technique.
3. A liquid, solid or gel-like medium prepared from agar, which supplies nutrients and energy necessary for tissue culture is used in this technique.

3 Explain about Agro-complementary occupations : Sericulture.

- Ans** i. Silkworms (moths) are reared for production of silk. Bombyx mori is the most commonly used variety for

this purpose. The life cycle of the silk moth consists of four stages, namely egg, larva, pupa and adult.

- ii. Thousands of eggs deposited by female moths are incubated artificially to shorten the incubation period. Larvae hatching out of eggs are released on mulberry plants.
- iii. Larvae are nourished by feeding on mulberry leaves. After feeding for 3 – 4 days, larvae move to branches of mulberry plant. The silk thread is formed from the secretion of their salivary glands.
- iv. Larvae spin this thread around themselves to form a cocoon. The cocoon may be spherical in shape.

4 Identify the odd word and explain why it is odd.

- a. Xylem, phloem, permanent tissue, meristematic tissue.
- b. Epithelium, Muscle fibre, nerve fibre, epidermis.
- c. Cartilage, bone, tendon, cardiac muscle.

Ans a. Meristematic tissue

It has the ability to divide, while the others have lost their ability.

b. Epidermis

It is a plant tissue, while others are animal tissue.

c. Cardiac muscle

It is a type of muscular tissue, while others are types of connective tissues.

Q.7 Answer the following in detail

5

1 Explain the meaning of biotechnology and its impact on agricultural management with suitable examples.

- Ans**
- i. Tissue culture can be used to grow those plants on a large scale, which bear flowers, fruits of excellent quality.
 - ii. Fully grown plants can be produced in shorter durations.
 - iii. Plants can be grown on a large scale even if means of pollination or germinating seeds are not available. For example, orchids or pitcher plant do not germinate but these plants can easily be produced by means of tissue culture.
 - iv. In a bioreactor, cells can be grown in a more nutritive medium and protected from pathogens. Bioreactors are useful for producing plantlets on a very large scale.
 - v. Large numbers of seedlings/plantlets can be produced in a short time using minimum resources and materials.
 - vi. Usually, plants produced by tissue culture and genetic modification techniques are disease-free. Plantlets produced by tissue culture of the meristem are virus-free.
 - vii. Embryos formed by conventional hybridization technique between two or more varieties may not grow fully for some reasons. However, embryos produced by tissue culture technique always complete their growth.
 - viii. Rare and endangered plants can be grown by tissue culture technique and can thus be protected from extinction. Similarly, various parts and seeds of such plants can be preserved by tissue culture and those varieties can be protected.