The Muscular System and Digestive System in Human Being

EXERCISE [PAGE 87]

Exercise | Q 1.1 | Page 87

Fill in the blanks with the right word from those given below.

The process of digestion starts from the ..... .

1. stomach
2. **mouth**

Solution: The process of digestion starts from the **mouth**.

Exercise | Q 1.2 | Page 87

Fill in the blanks with the right word from those given below.

Eyelids have ..... muscles

1. **voluntary**
2. involuntary

Solution: Eyelids have **voluntary** muscles.

Exercise | Q 1.3 | Page 87

Fill in the blanks with the right word from those given below.

..... is not a function of the muscular system.

1. **production of blood cells**
2. Performing movements

Solution: **Production of blood cells** is not a function of the muscular system.

Exercise | Q 1.4 | Page 87

Fill in the blanks with the right word from those given below.

Muscles of the heart are ..... .

1. ordinary muscles
2. **cardiac muscles**

Solution: Muscles of the heart are **cardiac muscles**.

Exercise | Q 1.5 | Page 87

Fill in the blanks with the right word from those given below.

Pushing forward the food that has been chewed is the function of the ..... .

1. stomach
2. **oesophagus**

Solution: Pushing forward the food that has been chewed is the function of the **oesophagus**.

Exercise | Q 2 | Page 87

Find a match for me.

Group A		Group B	
1	Cardiac muscles	a	always function
2	Are brought about by muscles	b	we never feel tired.
3	Pepsin	c	uncontrolled and painful contraction of muscles.
4	Cramps	d	chewing movements of jaws.
5	Skeletal muscles	e	enzyme of the gastric juice.

Solution:

Group A		Group B	
1	Cardiac muscles	b	we never feel tired.
2	Are brought about by muscles	d	chewing movements of jaws.
3	Pepsin	e	enzyme of the gastric juice.
4	Cramps	c	uncontrolled and painful contraction of muscles.
5	Skeletal muscles	a	always function

Exercise | Q 3.1 | Page 87

Who is telling a lie?

Tongue: My taste-buds can tell only a sweet taste.

1. Truth
2. **Lie**

Solution: Lie

The tongue can taste salt, sweet and bitter tastes.

Exercise | Q 3.2 | Page 87

Who is telling a lie?

Liver: I am the largest gland in the body.

1. **Truth**
2. Lie

Solution: Truth

Exercise | Q 3.3 | Page 87

Who is telling a lie?

Large intestine: I am 7.5 meter long.

1. Truth
2. **Lie**

Solution: Lie

The large intestine is 1.5 meter long.

Exercise | Q 3.4 | Page 87

Who is telling a lie?

Appendix: Digestion is impossible without me.

1. Truth
2. **Lie**

Solution: Lie

Appendix is not required for digestion.

Exercise | Q 3.5 | Page 87

Who is telling a lie?

Lung: I play an important role in excretion.

1. Truth
2. **Lie**

Solution: Lie

Kidneys play an important role in excretion.

Exercise | Q 4.1 | Page 87

Give reasons.

Food becomes acidic in the stomach.

Solution: Food becomes acidic in stomach because of the presence of hydrochloric acid in the stomach. As the food reaches the stomach, it gets mixed with the hydrochloric acid present there. The hydrochloric acid plays the following roles in digestion:

1. It initiates protein digestion by activating the conversion of pepsinogen to pepsin.

2. It provides acidic medium for the activity of pepsin and other enzymes present in gastric juice.

Exercise | Q 4.2 | Page 87

Give reasons.

Cardiac muscles are said to be involuntary muscles.

Solution: Cardiac muscles are said to be involuntary because they are not controlled by our will. These muscles are found in heart and are the only muscles which work throughout the life without getting tired or fatigue.

Exercise | Q 4.3 | Page 87

Give reasons.

Intoxicating substances should not be consumed.

Solution: Intoxicating substances should not be consumed because they harm the body directly or indirectly. Substances such as alcohol cause damage to the nervous system and the digestive system as well. Liver is the main organ which is affected by alcohol. Tobacco is one of the leading causes of oral cancer. Smoking has a direct effect on the respiratory system of an individual and can lead to lung cancer as well.

Exercise | Q 4.4 | Page 87

Give reasons.

Your muscles should be strong and efficient.

Solution: Our muscles should be strong and efficient because they carry out various vital functions in our body. From helping us to breath, digest food to helping us in

walking and lifting weights, muscles play an important role. If our muscles are not strong enough we would get tired easily and feel fatigue. It is required to keep them in a healthy state by regular exercising and taking proper diet.

Exercise | Q 5.1 | Page 87

Answer the following.

How many types of muscles are there? Which are those types?

Solution: There are 3 types of muscles:

- Skeletal muscle fibre: They are found attached to the skeletal bones and are voluntary. Skeletal muscle fibres are striated and are bundled together in a parallel manner by a sheath of tough connective tissues.
- Smooth muscle fibres: They are present in the walls of internal organs such as blood vessels, stomach, etc., and are involuntary. Smooth muscle fibres are fusiform (taper at both ends) and non- striated. They are held together by cell junctions and are bundled together in a sheath of connective tissues.
- Cardiac muscle fibres: This is the only type of muscle present in the heart. They are contractile in nature and are involuntary. Plasma membranes of cardiac cells are fused together by cell junctions, and hence, the cells stick together. Communication junctions present as intercalated discs facilitate the contraction of cardiac cells as a unit.

Exercise | Q 5.2 | Page 87

Answer the following.

What causes the problem of acidity? What is its effect on the body?

Solution: Stomach contains special cells called oxyntic or parietal cells which secrete hydrochloric acid in stomach. It plays two important roles like:

1. It initiates protein digestion by activating the conversion of pepsinogen to pepsin.

2. It provides acidic medium for the activity of pepsin and other enzymes present in gastric juice.

However, if the level of this HCl exceeds its normal levels, it results in acidity/acid reflux. Higher levels of HCl can result in the following effects on the body:

1. burning sensation in the stomach
2. burning sensation in the throat and heart
3. difficulty in swallowing
4. regurgitation
5. restlessness
6. belching
7. nausea

8. prolonged sour taste in the mouth
9. indigestion

Exposure to higher levels of HCl for longer durations can also result in the development of peptic ulcers/ulcers in the stomach.

Exercise | Q 5.3 | Page 87

Answer the following.

Name the different types of teeth. What is the function of each type?

Solution: There are 4 types of teeth which are found in humans:

1. Incisors are the teeth present at the front portion of the mouth. There are four incisors in each jaw. They are used for biting and cutting food.

2. Canines are located next to the incisors. There are two canines in each jaw. They are used for tearing and piercing food.

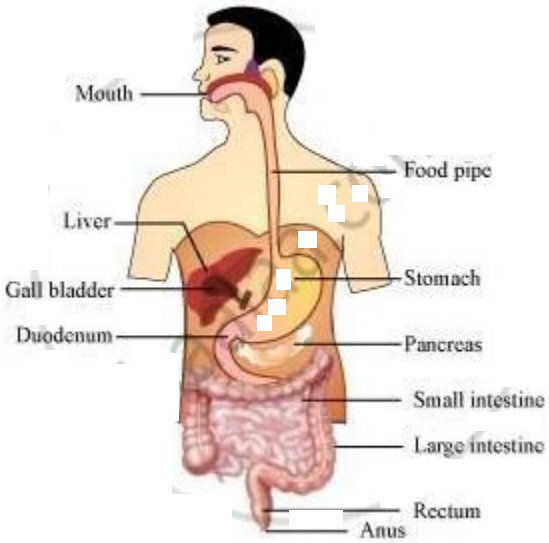
3. Premolars lie next to the canines. There are four premolars in each jaw. They are used for chewing and grinding food.

4. Molars lie next to the premolars at the end of the jaw. There are six molars in each jaw. They are also used for chewing and grinding food.

Exercise | Q 6 | Page 87

Sketch and label a diagram of the digestive system and describe it in your own words.

Solution:



Major constituent organs of the human digestive system are: buccal cavity, oesophagus, stomach, small intestine, large intestine, rectum and anus.

Buccal cavity − It includes the teeth, saliva and tongue. The teeth break down the food. Digestion of food begins in the mouth. The tongue helps in the chewing and swallowing of food.

Oesophagus − The food passes from the mouth, down the oesophagus, into the stomach, as a result of the movement of the walls of the oesophagus.

Stomach − It mixes the food received from the oesophagus with digestive juices.

Small intestine − The food from the stomach moves into the small intestine, which receives intestinal juices from two glands − liver and pancreas. These juices help in the further digestion of food.

Large intestine − Water is absorbed in the large intestine.

Rectum and anus − Undigested food particles are thrown out with the help of the rectum and anus.