

Chapter 1

HUMAN ORGAN SYSTEMS

REVIEW EXERCISES

Q.1 Circle the best answer.

(i) Which is secreted by the liver and stored in the gallbladder?

- ✓ (a) Saliva (b) Gastric juice
(c) Bile (d) Pancreatic juice

(ii) Where chemical digestion of proteins start?

- ✓ (a) Mouth (b) Oesophagus
(c) Stomach (d) Small intestine

(iii) Which line shows the correct order of alimentary canal?

- (a) Mouth → Oesophagus → Small Intestine → Liver
(b) Pharynx → Stomach → Pancreas → Liver
(c) Pharynx → Liver → Pancreas → Small Intestine
✓ (d) Mouth → Oesophagus → Stomach → Small Intestine

(iv) Which structure prevents the food from entering the larynx during swallowing?

- ✓ (a) Pharynx (b) Oesophagus
(c) Epiglottis (d) Tongue

(v) Which option correctly shows the difference between burning and breathing process?

	Burning Process	Breathing Process
(a)	It is a physical process as it forces air into and out of the lungs.	It is a chemical process as it burns food in the presence of oxygen.
(b)	It takes place in all living cells.	It occurs in the respiratory system.

(c)	It requires energy	It release energy
✓(d)	Enzymes are not involved	Various enzymes are required

Q.2 Explain why.

(i) ***Liver and pancreas are not considered as the parts of alimentary canal.***

Ans: Liver & Pancreas are not the parts of Alimentary Canal

The Liver and Pancreas both play a role in digestion. Without their secretions digestion remains incomplete. As liver contains gallbladder which stores bile.

However the food does not pass through these structures that's they are not the parts of alimentary canal.

(ii) ***Fats are not digested in mouth and Stomach.***

Ans: Fats are not digested in mouth and stomach because in mouth has an enzyme saliva and stomach has pepsin (enzyme). The both enzymes are unable to digest the fats.

(iii) ***Absorption only occurs in small intestine.***

Ans: Absorption

Absorption only occurs in small intestine as its wall consists of many folds that provides larger surface area. Its walls are completely surrounded by capillaries for maximum absorption.

(iv) ***Breathing is a physical process.***

Ans: Breathing is a Physical Process

Breathing is a physical process in which oxygen is taken inside the body and carbon dioxide is given out from the body. Breathing requires two processes.

☆ The taking in of oxygen is called inhalation.

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☆ The giving out of carbondioxide is called exhalation.

(v) ***Pollution causes respiratory disorders.***

Ans: The main causes of respiratory is environmental pollution some common disorders of respiratory tract are cough common cold, asthma, tuberculosis, pneumonia and lung cancer. We can prevent ourselves from these disorders by eating fresh fruits and vegetables. Do regular exercise properly clean ourselves. Live in a pollution free environment. Do proper vaccination.

Q.3 Give brief answer for the following questions.

(i) ***What is mechanical digestion? Discuss the process of mechanical digestion that takes place along the alimentary canal.***

Ans: Mechanical Digestion

Mechanical digestion in the mouth results from chewing tearing and crushing by teeth, which helps food to get easily mixed with saliva.

Saliva starts the chemical digestion of carbohydrates (starch). As a result food is reduced to soft and flexible semi solid food called bolus, easily swallowed by tongue and move towards oesophagus.

(ii) ***Describe the process of chemical digestion of a piece of potato that has been fried in oil, as it passes through following organs. Support your answer with enzyme word equations.***

(a) Mouth (b) Stomach

(c) Small Intestine

Ans: Mouth

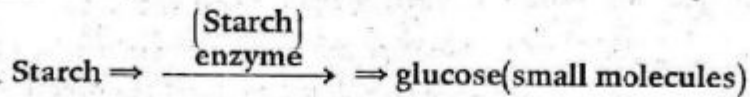
When piece of potato goes to in our mouth. The mouth results from chewing, tearing and crushing by teet which helps food (piece of potato) to get easily

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mixed with saliva. Saliva starts the chemical digestion of carbohydrates.

Equation:



Stomach:

From the oesophagus a soft and flexible semi solid piece of potato enters into stomach. The walls of stomach release gastric juices. This juice contains an acid called Hydrochloric acid (HCl) water and enzyme. The enzyme converts the large protein molecules into small molecules gastric juices start. the chemical digestion of protein. As a result piece of potato is converted into a small liquid food called Chyme.

Small Intestine:

As chyme enters in the bile from the liver and pancreatic juice from the pancreas. Bile is a greenish, brown juice secreted by liver and stored in gall bladder, it helps to break down large sized fats into smaller pieces so that fats can be digested faster by enzymes.

Words Equation:

Small protein molecules $\Rightarrow$ $\xrightarrow{\text{enzyme}}$ $\Rightarrow$ Amino acid

Semi - digested carbohydrates $\Rightarrow$ $\xrightarrow{\text{enzyme}}$ $\Rightarrow$ Sugar

Small fats pieces $\Rightarrow$ $\xrightarrow{\text{enzyme}}$ fatty acid & glycerol

(iii) *What preventive measures should be taken to avoid respiratory disorders?*

Ans: Preventive Measures of Respiratory Disorders

We can prevent ourselves from these disorders by following preventive measures.

- 1) By eating fresh fruits and vegetables.

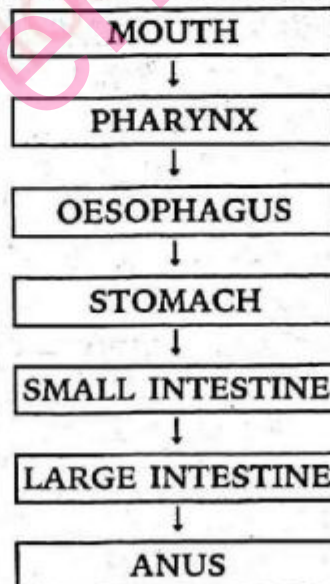
- 2) Do regular exercise.
- 3) Properly clean ourselves.
- 4) Live in a pollution free environments.
- 5) Do proper vaccination.
- 6) Do not smoke.

(iv) **Discuss the adaptation of alveoli for gaseous exchange process.**

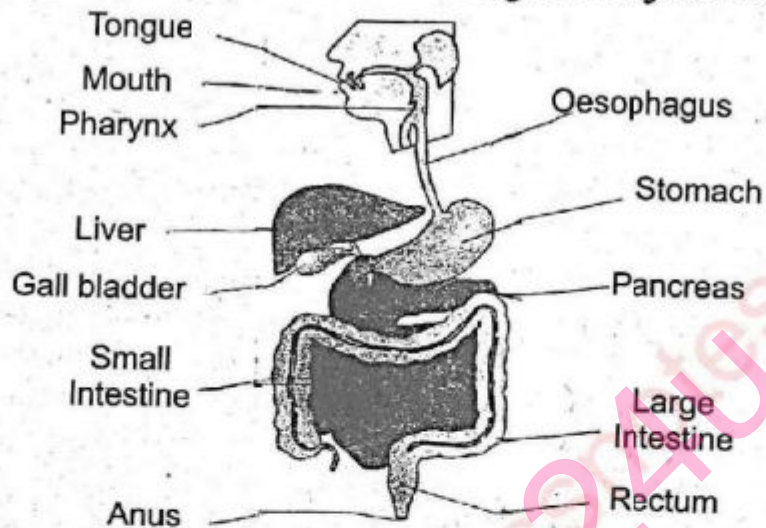
Ans: Alveoli have a microscopic structure consisting of single cellular layer. They are completely surrounded by blood capillaries. When oxygen enters inside the alveoli, the diffusion process occurs. The oxygen from alveoli (high level) diffuse in blood capillaries (low level). Whereas carbon dioxide from the blood capillaries (high level) diffuses in alveoli (low level).

When carbon dioxide reaches the alveoli, it moves towards bronchioles, bronchi, trachea, larynx, pharynx and finally leaves the body through nostrills. This is called exhalation. Blood transports oxygen to the cells where it reacts with food to give energy.

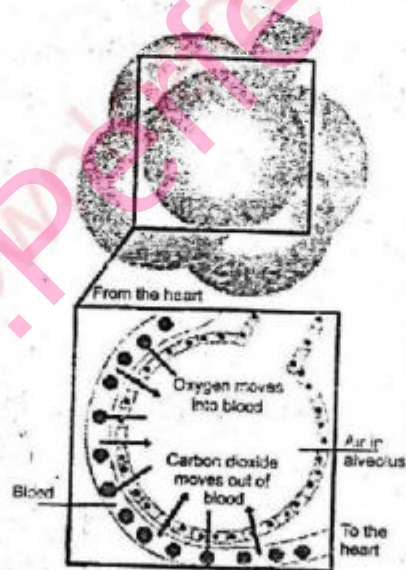
(v) **Draw a flow chart to show the digestion of food in the human alimentary canal.**



Q.4(a) Draw a labelled diagram of alimentary canal. Also draw the correct position of pancreas and liver in the digestive system.



(b) Draw a labelled diagram of gaseous exchange process in human body.



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Q.5(a) Summarises the difference between breathing and burning process.

Breathing	Burning Process
It is a physical process as it forces air into and out of the lungs.	It is a chemical process as it burns food in the presence of oxygen.
It occurs in the respiratory system.	It takes place in all living cells.
It requires energy.	It releases energy.
Enzymes are not involved.	Various enzymes are required.

(b) Describe any two common diseases of respiratory system and preventive measures?

Ans: Some common disorders of respiratory tract are cough, common cold, asthma, tuberculosis, pneumonia and lung cancer.

Cold:

The cold is a common disorder of the upper respiratory tract (nose and throat). The main cause of the cold is environmental pollution. The common symptoms of a cold are runny or stuffy nose, itchy or sore throat, cough, congestion, mild headache, sneezing, watery eyes, low grade fever, mild fatigue, etc. There is no cure for the cold. It can be relieved by symptomatic treatment such as taking over the counter medications (throat lozenges, throat sprays, cough drops and cough syrups). Gargling with salt water may help those with a sore throat.

Tuberculosis (T.B.):

Tuberculosis is a disorder of lower respiratory system (lungs). It is an infectious bacterial disease caused by *Mycobacterium tuberculosis*, in which the lung is damaged resulting in cough and fever. It is

transmitted from person to person via nasal secretion and sputum. The symptoms of the active T.B. of the lungs are coughing, sometimes sputum with blood, chest pains, weakness, weight loss, fever and night sweats. T.B. is treatable with proper medical attention. It is more common in poor people. Malnutrition and poor living conditions facilitate Mycobacterium to grow.

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