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Class 10th

Sub. Biology

Date:- 08.04.2021

Life processes

- Constantly exhibit the functions of maintenance and repair in living organisms
- Some Examples- Digestion, Respiration, Circulation etc.

Nutrition

- Process of obtaining nutrients from the environment i.e. intake of food and then its digestion in the body.
- Two types – Autotrophic (self-sufficient for food) and Heterotrophic (dependent on others for food).

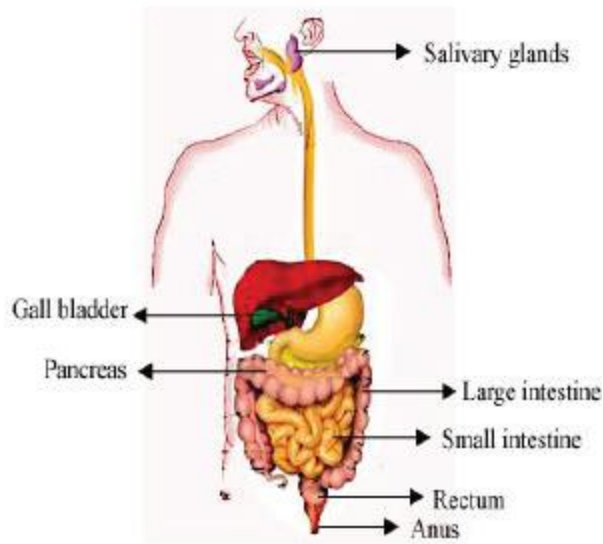
Autotrophic nutrition

- Synthesis of food by photosynthesis- 'photo' means light and 'synthesis' means production. It is the production of food with the help of sunlight.
- Photosynthesis equation-
$$6\text{CO}_2 + 6\text{H}_2\text{O} \text{ give } \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$$
- Events of photosynthesis are as follows: Absorption of light energy chlorophyll which is the green pigment and gives energy for activation of reaction. Then the splitting of water into its constituent's hydrogen and oxygen leading to the Synthesis of ATP and NADPH² and finally reduction of CO₂ to carbohydrates.

Heterotrophic nutrition

- Generally take up energy from plants and animals by using them as food.
- Mostly of three types—holozoic, parasitic, and saprophytic.
- Digestion- mechanical and chemical reduction of ingested nutrients which can be then converted to energy for use.
- Human digestive system- consists of the long alimentary canal that includes mouth, pharynx, oesophagus, stomach, small intestine, large intestine, rectum and anus.
- Organs for assistance- pancreas, liver

Nutrition in humans:



- Saliva is secreted by salivary glands located under the tongue which contains digestive enzymes like salivary amylase, which break down starch into sugar. So, digestion of carbohydrates starts in the mouth itself.
- Tongue helps in chewing, moistening, rolling and swallowing of food.
- The food from mouth then goes down the oesophagus, which is the food pipe to the stomach, through the movement of walls of oesophagus (peristalsis)
- Stomach mixes the food hence received with various digestive juices.
- Inner lining of stomach secretes:
 - Mucus – protects the lining of stomach from being corroded by the acid.
 - Hydrochloric acid – creates an acidic medium and dissolves bits of food.
 - Digestive juices – break down protein into simpler substances.

The food from stomach eventually moves into the small intestine.

- Digestion in small intestine: It is the longest part (about 7.5 m long) of alimentary canal. It is the site where complete digestion of carbohydrates, proteins, and fats takes place. It gets intestinal juices from two different glands – liver and pancreas that help in the further digestion of food.
- Liver is the largest gland of the body and secretes bile juice. Bile juice is stored in the gall bladder and has a significant role in the digestion of fats.
- Pancreas has enzymes that help in total digestion of all food components.
- The digestive tract and associated glands together constitute the digestive system.