

| Terms  | Terms (cont)  | Human Digestive System (cont)   | Human Digestive System (cont)  |
|--|---|---|--|
| A living cell needs supply of food to perform its various biological functions   | Extracellular digestion: the process of digestion take place outside of cell in their gut, the enzymes are released from secretory cell into gut where food is being digested and converted into simple food. | The Mouth: It is the anterior opening of alimentary canal bounded by two fleshy lips, termed as upper and lower lips, respectively.   | It is part of digestive system where no digestion occurs.  |
| The nutrients which are essentially required by the protoplasm to perform its different biological functions               | Chemical digestion: The digestion occurs due to enzymes.  | It is meant for ingestion of food.  | stomach: It is a ( J ) shaped oragan which opens from cardiac sphincter and close on pyloric sphincter.                      |
| Holozoic(Gr.Holo=Whole,zoikos=of animals)  | Mechanical digestion: The digestion occurs due to the physically breaking down (such as mastication,churning etc)   | Oral cavity: The mouth opens into a wide space called oral cavity.  | It is main part of digestive system where the processes of mechanical and chemical digestion occur.                          |
| holozoic nutrition consists of ingestion,digestion,absorption,assimilation and egestion                                    | Tube like digestive system: Animals have two openings in their digestive tract  | It is consist of tongue,hard plate, soft plate and jaws which are lined with teeth.   | It has 4 parts: the cardia, fundus ,corpus (body) and pylorus.   |
| Ingestion: taking in of food into the cell and body  | Sac like digestive system: Animals have single opening.   | Teeth is meant of mechanical digestion in oral cavity.  | The end product of stomach is chyme.   |
| Digestion: It is a process of breaking down of complex or non-diffusible food into simple or diffusible molecules.         | <b>Human Digestive System</b>   | Teeth: Initially, we have deciduous or milk teeth (20) which are latter replaced by permanent teeth.                                  | Here mainly protein digested due to presence of pepsin.  |
| Absorption: The soluble molecules of food are absorbed by the digestive membreanes   | Gastro-intestinal tract(G.I.T) with two openings, mouth and anus.   | Among the 32 permanent teeth,- there are 8 incisors, 4 canines , 8 premolar and 12 molar.   | Small intestine: stomach is followed by a long, coiled tube, the small intestine.  |
| Assimilation: The process of utilization of absorbed molecules during the metabolic process of cell is called assimilation | It begins with mouth and terminates on anus.  | Tongue: it is a muscular organ and its upper surface has numerous projections or papillae containing nerve ending for sense of taste. | It has three regions: duodemun,- jejunum and ilium.  |
| Egestion: The process of removal of undigested food from the cell\ body is called egestion                                 | human digestive system consists of digestive tract and accessory glands.  | The under surface of the tongue have a fold of mucous membrane is called frenulum.  | Duodenum: it is region where bile and pancreatic juice are enter and break down the chyme into simple molecules              |
| Intracellular digestion: The process of digestion take place inside the cell is called intracellular digestion             | The human digestive system consists of mouth,oral cavity-(buccal cavity),pharynx, esophagus,stomach,small intestine,large intestine and anus.   | Salivary Gland: they are three pair of salivary gland and they secrete the saliva which contains salivary amylase.                    | Here is hormone, secretin which acts upon pancreas to secrete water and bicarbonate which decreases the ph.                  |
|  | The gland associated with this are salivary gland, liver and pancreas.  | pharynx: It is common opening which is pathway for both food and air.   | pancreatic juice contains enzymes which convert protein into polypeptides and emulsified lipid into fatty acid and glycerol. |
|  |   | Esophagus: This tubular structure leads the bolus from pharynx to the stomach   |  |



### Human Digestive System (cont)

**Jejunum:** It is part after duodenum which secretes maltase, sucrase, lactase and peptidase to digest maltose, sucrose, lactose and small peptides.

**Ileum:** It is part of small intestine where absorption of vitamin B12, bile salts and any product of digestion occurs.

**Large intestine:** It is the last segment of human digestive tract. Its main function is reabsorption of water and nutrients.

Large intestine divided into following parts: caecum, colon, rectum and anal canal.

**Caecum:** It is a junction of small intestine and large intestine. It performs the function of reabsorption of water and salt.

**Colon:** The next region after caecum is colon. It consists of ascending colon, transverse colon, descending colon and sigmoid colon.

Its main function is reabsorption of water, salt and vitamins.

**Rectum:** The sigmoid colon opens into rectum. It is about 13cm long and terminates at anal canal.

### ROLE OF ACCESSORY GLANDS

The accessory glands are those exocrine glands which upon appropriate stimulation secrete their secretions (juice) into the alimentary canal through specific ducts.

The accessory glands consist of salivary glands, liver and pancreas.

**Salivary gland:** It has three pairs of salivary glands which secrete the salivary amylase.

**Liver:** It is the largest gland in our body. It is present in the upper part of the abdominal cavity.

The main function of liver is to supply oxygenated blood while the other one is the hepatic portal vein which brings nutrient-rich blood from various regions.

It also secretes bile and performs metabolism and homeostasis. It also synthesizes plasma proteins and also carries out phagocytosis by Kupfer cells.

**Pancreas:** It lies behind the stomach in a horizontal line along the curve of the duodenum.

As an exocrine gland, the pancreas secretes pancreatic juice containing enzymes that digest carbohydrates, proteins, and fats.

### Digestive system disorders

1. **Ulcer:** Sore (a painful wound) which could be developed anywhere in the body.

2. **Food poisoning:** Caused by taking contaminated, spoiled or toxic food.

3. **Dyspepsia:** Known as indigestion. Refers to the discomfort or pain that occurs in the upper abdomen followed by eating or drinking.

4. **Obesity:** Accumulation of excessive body fats.

5. **Anorexia nervosa:** Psychological disorder in which the person has a fear of gaining weight so refuses to eat appropriately.

6. **Bulimia nervosa:** Psychological disorder of gaining excessive body weight.

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