

NAME= LAIBA AMIR

ID= 17005

DEPARTMENT: HND

QUESTION 1: Write
a paragraph on the
process of food
digestion-Highlight
the functions of
each organs
involved-

PROCESS OF FOOD **DIGESTION:**

When we chew the food it gets mix with saliva. The saliva contain the enzyme which helps in breaking down starch. From the mouth the food travel to the pipe like esophagus and reaches the stomach. The stomach is a thick walled bag. The inner walls are also

secreted digestive juices which helps in the digestion. The partially digested food from the stomach moves into the small intestine then the digested juices in the small intestine start to breakdown the food. The liver secreted a chemical called bile juice which helps in the

digestion. The liver is reddish brown gland situated in the upper part of the abdomen on the right side. The bile juice secreted and is stored in a sac called the gallbladder. The juice is then released into the

small intestine. The pancreas is a large green colour gland located just below the stomach. The bile juice and the pancreatic juice reach the intestine through the small pipe like path. The digestion get completed inside

the small intestine. The nutrient gets absorbed by the small intestine walls which are full of blood vessels. The inner wall of the small intestine has small finger like projection called villi. Each villus has many blood vessels

so the bile absorb
the liquid digested
food and the food
enters the blood
vessels in the villi.
After the
absorption of the
digested food the
undigested food
moves and enters
into the large
intestine. The large

intestine absorb the water from it. After the absorption of water the undigested food become semi solid and gets stored in a sac like part at the end of the large intestine which is called rectum. This undigested semi

liquid food is called
the feces. The feces
removed from the
body through the
anus from time to
time. The
mouth, esophagus, st
omach, small
intestine, large
intestine along with
the rectum and the
anus from the

digestive tract. So, the digestive tract and the associated glands the liver and the pancreas together constitute the digestive system.

FUNCTIONS OF

ORGAN

INVOLVED IN

DIGESTIVE

SYSTEM:-

The function of the digestive system is digestion and absorption. Digestion is the breakdown of food into small molecules, which are then absorbed into the body.

-MOUTH:-

The mouth is

the beginning of the digestive tract.

Digestion starts here when taking the first bite of food. Mastication occur in mouth. By chewing the food into breaks into pieces and that are more easily digested.

-ESOPHAGUS:-

Esophagus commonly known as food pipe. It is a muscular tube connecting the throat (pharynx) with stomach. The esophagus receives food from the mouth when swallow. The esophagus delivers food to the stomach.

SMALL

INTESTINE:-

The small intestine is a muscular tube that breaks down food using enzymes released by the pancreas and bile from the liver. The duodenum is largely responsible for the continuous breaking-down process, with the jejunum and ileum mainly responsible for absorption of nutrients into the bloodstream. Once the nutrients have been absorbed and the

leftover-food residue liquid has passed through the small intestine, it then moves on to the large intestine, or colon.

-PANCREAS:-

The pancreas secretes digestive enzymes into the duodenum. These enzymes break down protein, fats,

and carbohydrates.
The pancreas also
makes insulin,
secreting it directly
into the
bloodstream.

-LIVER:-

The liver has
multiple functions
but its main
function within the
digestive system is

to process the nutrients absorbed from the small intestine. Bile from the liver secreted into the small intestine also plays an important role in digesting fat. The liver is the body's chemical "factory." It takes the raw

materials absorbed by the intestine and makes all the various chemicals the body needs to function. The liver also detoxifies potentially harmful chemicals. It breaks down and secretes many drugs.

GALLBLADDER:-

The
gallbladder stores
and concentrates
bile, and then
releases it into the
duodenum to help
absorb and digest
fats.

-LARGE

INTESTINE:-

The colon is
a 6-foot long

muscular tube
that connects the
small intestine to
the rectum. The
large intestine is a
highly specialized
organ that is
responsible for
processing waste
so that emptying

the bowels is easy and convenient.

Stool, or waste left over from the

digestive process is passed through the colon by

means of

peristalsis first in a liquid state and

ultimately in a

solid form. As stool passes through the large intestine water is removed. Stool is stored in the sigmoid colon until empties it into the rectum once or twice a day. The stool itself is

mostly food debris
and bacteria.

These bacteria
perform several
useful functions,
such as
synthesizing
various vitamins,
processing waste
products and food
particles and

protecting against harmful bacteria.

When the descending colon becomes full of stool or feces it empties its contents into the rectum to begin the process of elimination.

RECTUM:-

The rectum connects the colon to the anus. The job of the rectum is to receive stool from the colon. When anything (gas or stool) comes into the rectum

sensors send a message to the brain. The brain then decides if the rectal contents can be released or not. If the contents cannot be disposed, the sphincter contracts and the

rectum

accommodates so that the sensation temporarily goes away.

ANUS:-

The anus is the last part of the digestive tract.

The lining of the upper anus is

specialized to detect rectal contents. It lets you know whether the contents are liquid, gas, or solid. The anus is surrounded by sphincter muscles that are important in allowing control

of stool. The internal sphincter is always tight, except when stool enters the rectum. It keeps us continent when we are asleep or otherwise unaware of the presence of stool.

When we get an urge to go to the bathroom we rely on our external sphincter to hold the stool until reaching a toilet where it then relaxes to release the contents.

QUESTION 2:

How kidneys are

involved in the

urine

formation. Explai

n the process step

by step in detail.

URINARY

SYSTEM:-

A system

consisting of organs that produce, store and remove urine from the body.

FORMATION

OF URINE:

steps for urine

formation are:

1-ULTRA

FILTRATION:-

DEFINITION:

The process of fluid separation from blood into Bowman's capsule.

GLOMERULAR

FILTRATE:-

The substance which enters into Bowmann's capsule.

MECHANISM

OF ULTRA

FILTRATION:-

Blood enters the kidney by renal artery. The blood pressure is set up in glomerulus due to the diameter of efferent arteriole and the resistance to blood flow in glomerulus. Due to glomerulus pressure some fluid get entered into

Bowman's capsule by crossing.

1-Endothelium of the glomerular capillaries

2-Basement of the glomerular capillaries

3-Endothelium of Bowman's capsule

AMOUNT OF

FILTRATE:

About 20% of the

plasma is filtered into capsule. 125ml per min or 120 litres per day

CHEMICAL

COMPOSITION OF

FILTRATE:-

It is same as blood plasma. It contain glucose, amino acid, vitamins, ions,

nitrogenous wastes,
some hormones and
water.

SUBSTANCES

NOT FILTRATE:-

Large
molecules, blood cells
and platelets unable
to cross capillaries
wall.

TUBULAR

REABSORPTION:-

DEFINITION:

Movement of selected substance from nephron into blood capillaries.

MECHANISM OF TUBULAR

REABSORPTION:

. AMOUNT OF TUBULAR

REABSORPTION:

Out of 125 ml of glomerulus filtrate per minute 124 ml is

reabsorbed on average.

REABSORPTION

IN VARIOUS

PARTS OF

NEPHRON:

PROXIMAL

CONVOLUTED

TUBULES:

Over 80% glomerulus filtrate is reabsorbed here in proximal tubular part, all the glucose, amino acid,

vitamins, hormones,
sodium chloride and
water is reabsorbed.

LOOP OF HENLE:

The counter
current multiplier
system results in
reabsorption of a lot of
water and solute.

Descending limb:
reabsorption of water

Ascending limb:
reabsorption of
sodium, chloride,

potassium and other ions.

DISTAL
CONVOLUTED
TUBULES:

It have osmoregulatory role, control the PH by secreting H ions.

COLLECTING
DUCT:

Under the effect of

ADH, the urine volume is reduced.

TUBULAR

SECRETION:-

DEFINITION:-

The transfer of material from peritubular capillaries to renal tubular lumen.

MECHANISM OF

TUBULAR

SECRETION:-

It is mainly by active transport.

SUBSTANCE

SECRETED:

Few substances are secreted as Hydrogen ion, ammonium ion, drugs and penicillin.

IMPORTANCE OF

TUBULAR

SECRETION:-

1-Drugs are eliminated

by tubular secretion.

2-Hydrogen ion

secretion is important
in acid based balance.

EXCRETION:-

DEFINITION:

The removal of metabolic waste and toxic material from the living cell or the body is called excretion.

MECHANISM OF

EXCRETION:

Excretion is what goes into the urine, the end result of the above three processes. The original concentration of a substance in the tubule fluid may initially be close to that of plasma, subsequent

reabsorption and secretion can dramatically alter the final concentration in the urine. There are two types of metabolism the first is useful metabolism which are remain in body for function and the other one is harmful metabolites which

must be removed
from the body. They
are CO_2 , H_2O and
nitrogen wastes.