NAME= LAIBA AMIR
ID= 17005
DEPARTMENT=HND

QUESTION.1
Differentiate between
1. positive and negative feed back mechanism
2. Smooth and rough endoplasmic reticulm
3. Lysosomes and peroxisomes
4.Pepsin and pepsinogen
5.Peptic ulcer and

duodenal ulcer.

1 POSITIVE FEED BACK MECHANISM:-

DEFINITION:

It involves a change in some variable that triggers mechanisms that amplify rather than reverse the change.

IMPORTANCE:

It is needed within homeostasis but it can be harmful at times.

FEVER:

High fever causes change in metabolism that can push the fever higher and higher.

RESULTS:

-Body temperature rises and can denatured the enzyme

-Cellular proteins stop working

-Metabolism stops, resulting in death

INHALATION OF CARBON DIOXIDE:

If person inhale air with high CO2 content CO2 level in blood increase. This increase level of CO2 is received and breathing rate is increased which stimulate the receptor even more and the faster breathing rate

increase CO_2 level higher.

EXAMPLES OF POSITIVE FEED BACK:

CHILD BIRTH:

During child birth , uterine contractions start due to the pressure of baby's head against sensor

near cervix.It causes greater pressure against cervix,heightening the contraction which causes greater pressure to bring childbirth to completion.

-BLOOD CLOTTING:

The injured tissues releases

chemicals that activates platelets the blood.An activated platelets release chemical to activate more platelets that accelerate the process which end up in the formation of a blood clot.

NEGATIVE FEEDBACK:-

DEFINITION:

It results in a reversal of the direction of change.

IMPORTANCE:

- Negative feed back is mainly how homeostasis is

maintained.
- It tends to stabilise a system.
- It increase the amount of one hormone and decreases the secretion of another hormone.

EXAMPLES:

DECREASE WATER CONTENT

IN BODY:

When there is a deficiency of water in body the hypothalamus stimulate posterior pituitary gland to secrete ADH.ADH make distal convoluted tubule and collecting duct of nephron more permeable so

maximum water is retained in body.

INCREASE WATER CONTENT IN BODY:

When blood water level rises in body, it is detected by hypothalamus and ADH secretion from pituitary gland is inhibited to let maximum water out of the body.

REGULATION OF GLUCOSE LEVEL:

After the intake of sugar the increase glucose level is detected by pancreas which secrete insulin to decrease glucose.When the glucose level is maintained the message is send back to the pancreas to stop

the secretion of insulin.

SMOOTH AND ROUGH ENDOPLASMIC RETICULUM:-

1-The most basic difference between rough and smooth endoplasmic reticulum is the presence of ribosomes.SO, rough endoplasmic reticulum

(RER) possesses ribosomes attaches to its membrane while the smooth endoplasmic reticulum (SER) does not have ribosomes on its membrane.
2-RER is formed of cistern and a few tubules while the SER is formed of vesicles and tubules.
3-RER participates in the synthesis of enzymes and proteins while the SER participates in the

synthesis of glycogen, lipids and steroids.
4-RER helps in the formation of lysosomes while SER gives rise to sphareosomes.
5-RER develop from the nuclear envelope while SER develops from rough endoplasmic reticulum.
6-RER provides biochemical for golgi apparatus while SER provides vesicles for

golgi apparatus.

3- LYSOSOMES AND PEROXISOMES:-

1- Lysosomes are only found in animals while peroxisomes are found in all eukaryotes.

2- Lysosomes

consist of degradative enzymes while peroxisomes consist of oxidative enzymes.

3- Lysosomes are large in size while peroxisomes are comparatively small in size

4- Lysosomes are

derived from either golgi apparatus while peroxisomes are derived from endoplasmic reticulum and are capable of replicating by themselves.

5- Lysosomes breakdown

biological polymers like proteins and polysaccharides while peroxisomes oxidise organic compounds, breaking down metabolic hydrogen peroxide.
6- Lysosomes involved in

endocytosis,autophagy and phagocytosis while peroxisomes are involved in biosynthesis of lipids and photorespiration.

4-PEPSIN AND PEPSINOGEN:-

1-Pepsin is the chief

digestive enzyme in the stomach which breakdown proteins into polypeptides while pepsinogen refers to the substance which is secreted by the stomach wall and converted into the enzyme pepsin by gastric acid
2-Pepsin is the active protease while pepsinogen is the

proenzyme of pepsin.
3-Pepsin digest proteins into shorter chain of amino acids while pepsinogen becomes activated into pepsin by HCl present in the gastric juices.

5-PEPTIC ULCER AND DUODENAL ULCER:-

1-A peptic ulcer is a sore thats on the inside of the stomach lining while duodenal ulcer occur in duodenum.
2-In peptic ulcer the duration of epigastric pains is 1-2 hours after eating while in

duodenal ulcer the epigastric pain is for 2-5 hours after eating.
3-peptic ulcer can cause hematemesis or meleena and gastric carcinoma while the duodenal ulcer can cause hematochezia but

the pain may awaken patient during the night.
4-Common symptoms of peptic ulcer are heart burn, chest discomfort while in duodenal ulcer the heart burn, chest discomfort are less common but

maybe seen.
5-Vomiting is common in peptic ulcer while uncommon in duodenal ulcer.
6- In gastric ulcer the Hal secretion is normal— hyposecretion while hyper secretion of

stomach acid take place in duodenal ulcer.

QUESTION.2

What is portal triad.Give clinical significance of portal triad.

PORTAL TRIAD:-

Portal triad also known as portal canal, portal field, portal aerator portal tract is the distinguish arrangement with in lobules.
It is a component

of the liver lobe.In each hepatic portal system there are at least vein, an artery and a bile duct.The largest branch of these vessels that runs with in hepatoduodenal ligament as well as

the smaller branches of these vessels with in the liver.

COMPOSITION AND LOCATION:

In smaller portal triads the four vessels are in a network of

connective tissue and are surrounded on all sides by hepatocytes. The ring of hepatocytes that abutting the connective tissue of the triad is called the

periportal limiting plate.

STRUCTURE:

It consist of the following five structures:

— Adequate hepatic artery: an anterioid branch of the hepatic

artery that supplies oxygen.
— Hepatic portal vein: a venular branch of the portal vein with blood rich in nutrients but low in oxygen.
— One or two small bile ducts of

cuboidal epithelium branches of the bile.

— Lymphatic vessels.

— Branch of the vagus nerve.

FUNCTION:

The portal triad are

composed of three main tubes. The branches of the hepatic artery carry oxygenated blood to the hepatocytes while the branches of the portal vein carry blood with nutrient from the

small intestine.The bile duct carrier the bile products away from hepatocytes, to the larger ducts and to the gallbladder.

CLINICAL SIGNIFICANCE

OF PORTAL TRIAD:-

—Bridging fibrosis:a type of fibrosis seen in several types of liver injury , describes fibrosis from the central vein to the portal

triad.

—BLOOD SUPPLY TO LIVER: The portal venous system is responsible for directing blood from parts of the

gastrointestinal tract to the liver.Blood flow to the liver is unique in that it receives oxygenated and partially deoxygenated blood.

—The hepatic portal vein receives blood from the body and transport it into the liver for filtration and processing.
— The hepatic portal circulation

captures substances from the digestive system and send them to the liver to be metabolised.

QUESTION.3

Give properties of cell membrane

structure.

CELL MEMBRANE:-

DEFINITION:

The cell semi permeable surrounding the cytoplasm of a cell.It is

thin and flexible layer.

Every cell of our body is enveloped in a biological membrane that serves a multitude of

function.

FUNCTION OF CELL MEMBRANE:

It act as a protective barrier, basically act in transport ,sign

al transduction and in energy storage.

PROPERTIES OF CELL MEMBRANE STRUCTURE:-

All the cell membrane have the same

properties.The several properties of cell membranes are:

1-The cell membrane are relatively thin and create a closed boundary.

2-Cell membranes are made up lipids.

proteins and carbohydrates.The ratio of lipids to protein depends on cell type and cell activity.

3-The cell membrane consist of a phospholipid bilayer.One part of that phospholipid

found inside the membrane is polar and that is known as the polar head.The polar heads basically orient themselves to the outside or the inside because the outside and the inside contain

a polar environment but the non polar hydrophobic region basically aggregate at the centre of that cell membrane.The cell membrane basically serves as a barrier for polar

and charge molecules.
4-The cell membrane is held together by non covalent interactions.
5-The cell membrane is not rigid. It is fluid like and that because

of the relatively weak non covalent interactions, so due to the relatively weak interaction interactions bounds, lipids and most of the proteins are in a state of lateral

motion.
6-Proteins diversify the properties of cell membranes.Proteins function as a transporters, enzymes, receptors and mediate energy storage.

7-Membranes have polarity.Membranes create a separation of charge ,which means they induce an electric dipole moment between the two sides of the

membrane.This create an electric potential difference.
8-Membranes are not symmetric structures and so the density and the distribution of proteins is not symmetrical along

with the cell membrane which means the two faces of the membrane are never actually the same.